

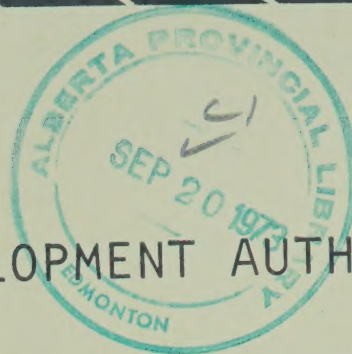
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Socio-Economic Survey of Isolated Commu-
nities in Northern Alberta. July, 1 1



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RESOURCES

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A
SOCIO-ECONOMIC SURVEY
OF
ISOLATED COMMUNITIES
IN
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PROVINCE OF ALBERTA

The Hon. R.A. Speaker
Chairman



J.E. Oberholtzer
Director

Editor's Note

This volume is an abridgement of the original manuscript, an extensive research document. As much as possible, the factual data pertaining to isolated communities has been retained. The largest reductions in content were made in the areas of Market Analysis and Description of Industries. In the Summaries, the recommendations, and the conclusions; almost all of the original material has been retained.

L. Sereda
Research Editor



HUMAN RESOURCES DEVELOPMENT AUTHORITY

A SOCIO-ECONOMIC SURVEY

of

ISOLATED COMMUNITIES

in

NORTHERN ALBERTA

by

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Research and Planning Division

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Edmonton, July, 1970

The Honourable R.A. Speaker,
Chairman



J.E. Oberholtzer,
Director

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For typing and proof-reading of the various drafts, I am grateful to Miss L. M. Anderson, Mrs. B. K. Arbuckle, and Miss P. J. Cooke.

R. L. M.

PREFACE

In recent years, researchers, planners, educators and administrators have been devoting increasing amounts of attention to the northern part of Alberta. Perhaps the best way to sum up the reasons for this increased attention is the observation that the economy of the region, especially that of the more isolated areas, is undergoing both social and economic adjustments. Essentially, the traditional hunting - trapping - fishing economy is being replaced by a wage economy with some corresponding changes in the life styles of the region's residents. Communities are showing signs of becoming organized and increasingly more permanent entities. As such, many of the communities evidently require improved essential services which can be classified as 'infrastructure'; one of the more important components of which is transportation facilities which improve access to jobs and attract job-providing industries into the area.

It is with the foregoing concerns in mind that the Lesser Slave Lake area has been designated as a "Special Area" by the Federal Government. In general terms, the prime objective of the "Special Area" program is to bring the residents of the designated area into the mainstream of Canadian life. More specifically, it is intended that the supplementary assistance provided to the area's residents under the program will enable them to take advantage of the economic activities and to raise their levels of living.

A prerequisite to the provision of additional services is an accurate assessment of the present situation and future, potential in order to maximize the benefits accruing from the provision of such services. This publication seeks to provide information which would be useful to local residents, planners, and various resource personnel who will influence the development of policies and programs for the area which, hopefully, will contribute to a better life for the local residents. The "Special Area" is the focal point of this study, although some communities around the periphery are included as well.

V. T. Janssen
Head

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INTRODUCTION

In northern Alberta in an area north of Lesser Slave Lake, there are a number of settlements which are isolated geographically, economically and culturally. These communities are generally populated by people of native ancestry; either registered Indians or Metis. Many of the people there perceive themselves as remnants of an older primitive culture, shielded by geographical distance from intrusions by dominant white society. Their economy is heavily dependent on the traditional activities - the harvesting of fish and wildlife in their immediate area. In some cases, the residents have lost their ancestral skills; the skills necessary to obtain food, lodging and clothing from the land. In other cases, the land cannot provide the necessities of life and a nomadic sort of existence is limited by the agricultural settlements in the general area. Cash incomes, for various reasons discussed later in the report, are limited. Where the land cannot provide life's necessities and ancestral skills are inadequate, the residents become increasingly dependent on the production of the larger social order. With only casual sales of fish and furs, their incomes are inadequate to purchase all of the required goods for their families. Consequently, they become increasingly dependent on social assistance.

One of the prime reasons for the residents' inability to cope with the development of physical resources for the purposes of earning cash incomes, is the generally low educational levels. Some of the communities do not have an economic raison d'etre; others that do are economically undeveloped or have their economies dominated by outsiders because the local people do not have the necessary qualifications. About 35% of the people in isolated communities have had no formal education at all. Many of the adults have had no formal training of any sort; academic or vocational. Schools in the communities generally offer academic training from Grade 1 through Grade 8. Students desiring to remain in school beyond Grade 8 must attend residential schools in larger communities. The dropout rates are extremely high; a result of inadequate facilities in the local schools and teachers who are not equipped to cope with the ethno-

centric characteristics of the students. It would appear unlikely that better quality teachers can be attracted to the area with the present pay schedule.

In general, the state of health of residents in isolated communities is far below the levels in the remainder of the province. There are exceptionally high rates of infant mortality, diseases and accidents. In some communities a prevalence of skin diseases caused by a lack of personal hygiene and unsanitary living conditions was observed. Health authorities have found some of the water supplies contaminated and sewage facilities are non-existent. Health problems are aggravated by poor housing, over-crowding, unsanitary living conditions, poor diets, ignorance of the causes of disease, and a disregard for the basic principles of disease prevention and healthful living. Although the proportion of nurses per 1,000 of population is considerably higher than for the remainder of the province, the proportion of doctors, dentists, and hospitals is much lower.

Much of the housing in isolated communities is grossly substandard by comparison with the remainder of the province. Most families are housed in one-roomed log cabins which are invariably over-crowded. Many of the homes are without even the most basic conveniences such as electric power. Most are heated by wood-fired, airtight heaters or stoves that have been the cause of numerous fires. Indoor plumbing is almost universally absent as are telephones and satisfactory supplies of water.

In summary, the isolated communities have become pockets of poverty, isolated physically, socially and economically from the mainstream of life of the larger community; the Province of Alberta.

The lack of adequate transportation accentuates this physical isolation. Even in a legal sense, many of the settlers are at a disadvantage. Except for residents of Metis Colonies and Indian Reserves, the settlers of isolated communities do not have any recognized tenure on the land they occupy. Almost all of the settlement has taken place in the 'Green Zone' which is legally withdrawn from settlement.

Although evidence exists that past government efforts have been directed at compensating under-developed areas in the province, the best example of an explicit policy statement that could be found is in the

Alberta Government White Paper on Human Resource Development. Essentially, the policy statement expresses a belief that before a higher order social development is possible, the citizens must be assured of the basic necessities of life:

It is fundamental to this concept (social development) that man is not only willing but anxious to accept responsibility when he can successfully do so. Yet growth toward social responsibility can only be predicated on the assurance of the basic conditions of life - food, clothing, shelter, medical care and education. Once these conditions are assured, the real process of social development can proceed.¹

In order that residents of isolated communities may participate fully in the mainstream of the larger society, social development must take place. A prerequisite to social development must be "the assurance of life's necessities". For the most part, these can be satisfactorily obtained by the provision of relatively stable employment which yields an adequate level of income. Part of life's necessities, for all practical purposes, can only be provided on the community level (eg. medical services, education, power, water systems, roads, etc.). Because these services are a scarce resource, they can only be provided to communities that are economically healthy or to put it in other words, to those communities that can afford them. The reasons for this are: 1) many of the services are subject to overwhelming economies of scale (eg. it would be unrealistic to construct a vocational school for 5-10 people); 2) some communities cannot 'afford' any of the services at all because they have no economic base, and 3) it is a cold reality that even on a provincial level, funds are limited so that it becomes necessary to allocate scarce resources among competing ends.

Clearly, every isolated community cannot provide the full range of services considered to be necessary. In this volume, the criteria for deciding which community can provide the satisfactory level of services

¹ Social Development, A Position Paper Arising Out of the White Paper On Human Resources Development, Presented by the Honourable Raymond A. Speaker, Government of Alberta, April, 1969, p. 5.

are: 1) the economic base; 2) the number of people served; 3) community's location (ie. if the community is centrally located and access is reasonably good, it may serve a larger population than one that is inaccessible and peripherally located.)

DEVELOPMENTAL ALTERNATIVES

Essentially, the goal of a socio-economic development programme is to lessen or eliminate the disparity between the potential and actual development of human and physical resources. The programme pursues two mutually-dependent goals; the development of the individual by stimulation and education, and the structuring of an environment conducive to healthy relationships between individuals. The former is the focal point of the social component of the programme, while the latter is the subject of the economic component.

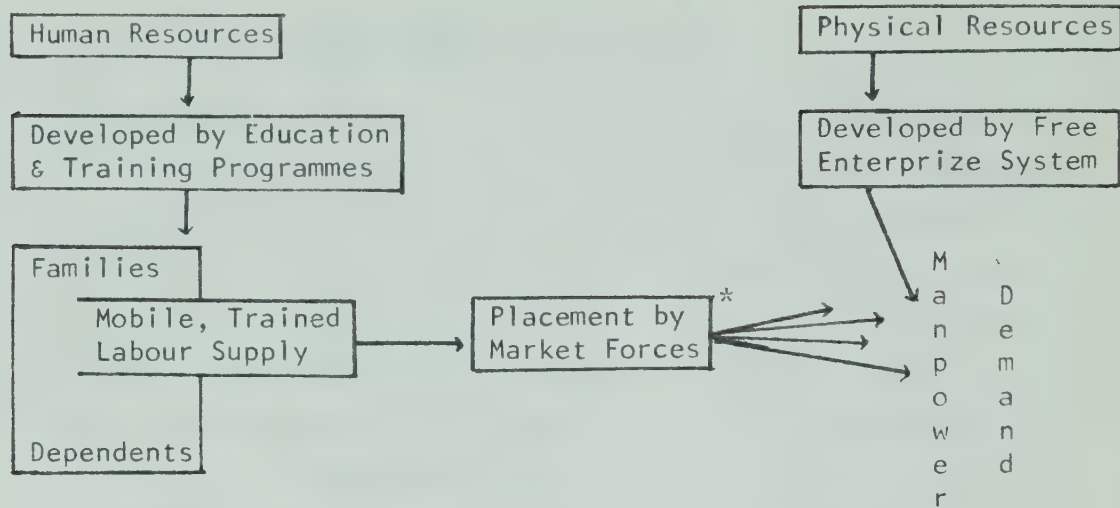
There are two alternative developmental models that can be considered:

Model 1: In this approach, human resources development is stressed as the first and primary activity of the development programme. The activity would involve private and public expenditures on education and training programmes in order to create a highly competitive, highly mobile labour force. Newstart Inc. is one example of an attempt to provide a rapid learning of the basic life skills; vocational skills, and academic knowledge necessary for success in a society with a highly developed technology.

The goal of this model is to develop mobility. All the social services are designed on a short term basis, until the goal of a skilled, mobile labour supply is reached. Labour demand, on the other hand is left to develop spontaneously as entrepreneurs develop the physical resources when and where the rate of return is deemed high enough. (Physical resources as industrial inputs, would include natural resources such as land, water, forest cover, etc. and man-made physical resources such as roads, bridges, dams, etc..)

The approach is summarized on the following page.

The final result of this approach is a highly mobile labour force and an employment demand that exists where and when physical resources can be most economically exploited. Theoretically, this approach would provide for the most efficient allocation of resources since the market mechanism is an integral part.



* Indicates uncertainty of placement in both time and space.

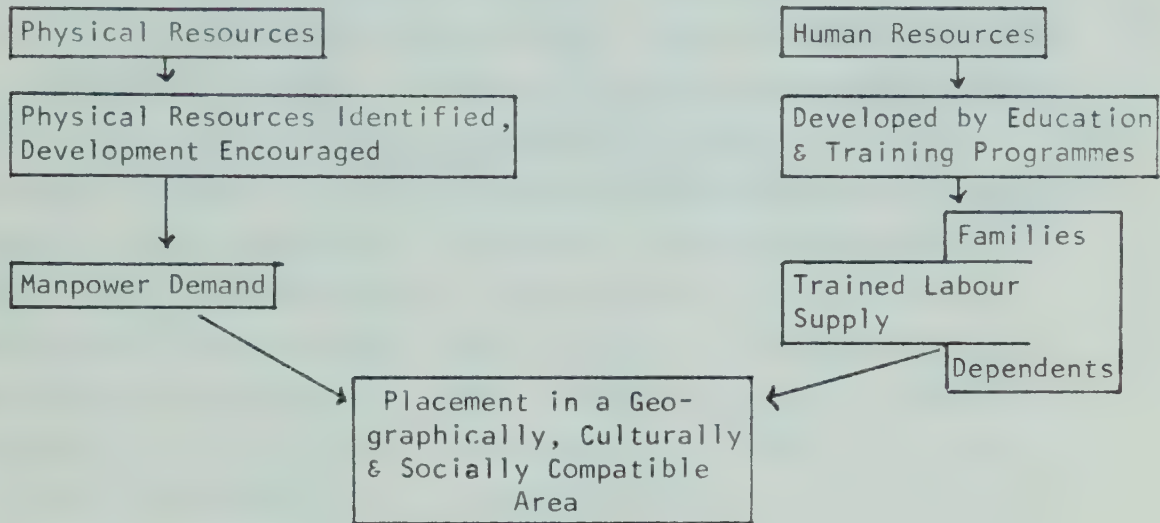
A critique of the approach will be offered after the second approach is examined:

Model II: In this approach, the first step consists of assessing the quantity and quality of human and physical resources in an area. Those communities whose physical resources appear adequate to provide life's needs and perhaps even some expansion, are identified. (Bear in mind that the government policy is firmly committed to the idea that an individual's life's needs must be assured before any social development is possible.) These communities, then, become the focal points for the developmental process. Services are moved into the area, training programmes are initiated, development of the now-identified physical resources is encouraged. Private and public expenditures on total resource development are encouraged.

In this approach, human and physical resources are developed simultaneously. Development takes place in those areas where an adequate economic base is present. Services are moved into these areas to attract both the investment and the population. In short, even a cursory examination indicates that not all isolated settlements have an adequate economic base to support even present populations, let alone growing ones. Some, however, appear to have growth potential. It is believed that areas with growth potential can become 'growth

nodes' within the study area, attracting populations from the less viable areas.

The approach is summarized below:



Summary: In summary, the sequences of events in the two models are as follows:

- Model I:
- 1) Mobile services move into an area
 - 2) Human resources are developed through training programmes resulting in a trained mobile labour supply
 - 3) Labour supply moves to growth areas (There are some potentials of growth in the study area so that some may remain but by no means, all.)

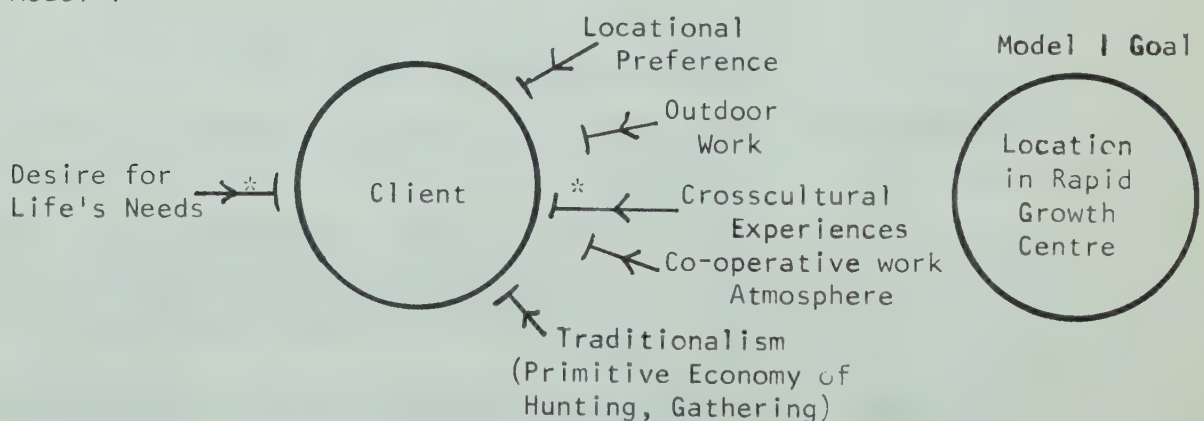
- Model II:
- 1) Potentially viable communities are identified
 - 2) Services and training facilities move into viable communities
 - 3) Jobs are created through encouragement for private and public investment in physical resource development
 - 4) Some of the trained labour force remains in their own community and some is attracted by amenities in growth nodes.

Critique: Essentially, the first model has as a recommendation, the efficiency of allocation of human and physical resources. Its failure is its inability to take into account the characteristics of the residents of isolated communities. If physical resources are developed according to where investment returns are highest, it is quite conceivable that

Northern Alberta resources may remain dormant (with the exception of petroleum resources) for some time. The idea that residents, once trained, will move to jobs wherever they exist, ignores an already-manifest desire of residents to establish households where these have already been established. Lastly, the model assumes that free market forces are ideal in their operation and that development does not require imposed or artificial stimuli.

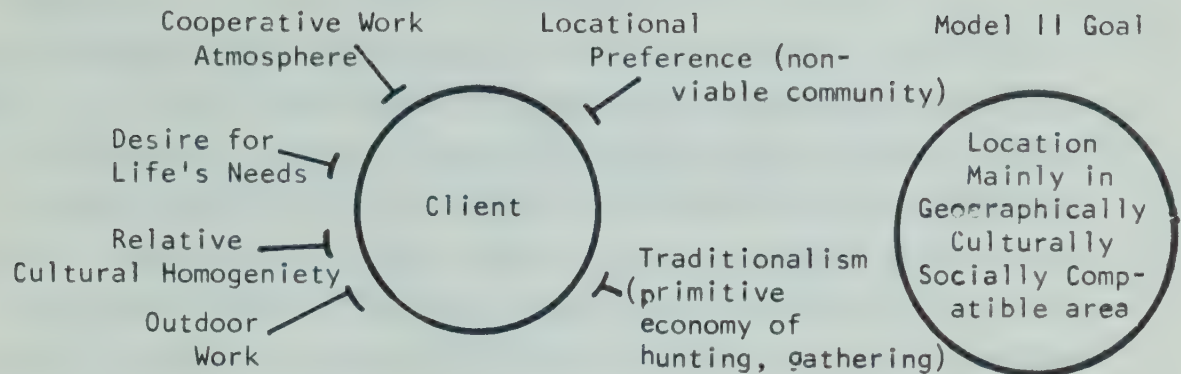
The second model is wrought with perhaps as many dangers as the first. A co-ordinated development such as is envisaged in Model II will at best be difficult. Secondly, if private investors, because of market conditions, more certain returns elsewhere, lack of capital or some subjective bias fail to invest, public expenditures may have to be made over a long period of time. Nonetheless, the second model takes into consideration the particular characteristics of the predominantly native residents such as: 1) **The desire to live in a rural setting** 2) work out of doors 3) work in a co-operative rather than a competitive setting 4) work with their own people. In short, the second model is more client-oriented while the first is more materialistic. The effect on the clients of the two approaches are diagrammatically envisaged below:

Model I



* Relative strengths not determined.

Model II



Please Note: The above diagrams are intended as conceptual aids. They are not a force-field analysis. Neither the strengths nor the directions of the various forces have been determined but it is fairly certain that those on the left are goal-directed while those on the right are more or less in opposition.

BACKGROUND TO THE STUDY

For some time the process of settlement has been underway in the study area and there has been concern in government circles that the settlers have had to do without the many services that residents of less isolated areas take almost for granted. Efforts have been made to provide vital services such as health, education and welfare. However, when the Little Buffalo project was submitted in 1968, the concern became urgent. It became quite clear that orderly, rational and total area development had to be considered. The Little Buffalo submission was a request for assistance in establishing a cattle-raising enterprise, which as economic ventures go, was a departure from the traditional fishing and trapping economy that was once capable of providing the life's needs of the residents.

It appeared obvious at the outset that ad hoc concentrations of services would not do: Any community that received services as they were requested would simply attract residents from another community which remained without them. Furthermore, a community with new services may grow at a rapid rate at first, (perhaps to the point where the services became rapidly inadequate) then decline as it becomes increasingly obvious that the economic base cannot support the expanded population. Cadotte Lake is an example of the somewhat ill conceived, unco-ordinated provision of services. In 1966, the school was moved from Martin River and new homes were constructed with loans from the Northern Alberta Development Council. The result is a community that is better located geographically than the former one but to date few job opportunities exist in the area and stagnation is becoming evident. It was, therefore, decided to examine the communities in the whole area in order to determine ways of maximizing the benefits to the residents accruing from the services provided.

As previously stated, it was quite clear from the outset that not all communities had a potential for growth. Because services are scarce resources it is essential that their allocation return maximum benefits. This study, then, seeks to identify or establish which of the isolated

communities or areas have the greatest growth potential and, quite related to the first part, which can maximize the services provided.

It has been assumed throughout the study that the provision of services and socio-economic development efforts should be instituted simultaneously.^{1/} The need for work that would return cash incomes would, in turn, purchase life's needs, was quite evident. Disparities between the actual and potential resources development were quite obvious and quite obviously, there was a need for some stimulus to narrow the gap. Finally, it was evident, by the fact that residents established households where few employment opportunities existed, that their preference for that particular location was strong indeed and that it was highly unlikely that they would migrate if adequate income was the only incentive. Consequently, it was assumed that developmental Model II would be most appropriate to the situation.

^{1/} The alternatives were discounted as unacceptable: If the community could not 'afford' the services, even in the future, government grants to pay for them would amount to much the same thing as welfare payments. The possibility of a service-providing community was not discounted, i.e. a centrally-located community with services that smaller, peripherally-located communities could not provide individually because of their small size.

RAPID GROWTH INDUSTRIES IN ALBERTA

Prior to examining the quality and quantity of natural resources in isolated areas, Alberta industries were surveyed and a rates of growth in terms of employment were noted:

ALBERTA INDUSTRIAL ACTIVITY RANKED BY GROWTH IN EMPLOYMENT 1949-1964 (1949 = 100)

Rank	Type of Industry	Growth (%)
1	Chemical	312
2	Oil & Gas	267
3	Iron & Steel	256
4	Service	241
5	Finance, Insurance & Real Estate	235
6	Construction	205
7	Retail	195
8	Whole Sale	186
9	Non-Metalic Minerals	171
10	Public Utilities	155
11	Transportation, Communication	129
12	Printing & Publishing	146
13	Transportation Equipment	135
14	Wood Products	125
15	Food & Beverages	125
16	Agriculture	90
17	Coal Mining	-87

A ranking by employment increase is not the only way to measure industrial growth. The method was selected because of the human resource bias of this study. What is best for a community with a dearth of services and employment opportunities is a labour-intensive industry.

There are many types of labour intensive industries, many of which may not find it economical to locate in an isolated area. The second step, then, was to determine the locational characteristics of the industries. Locational characteristics were classified under

the following categories:^{1/}

1. market-oriented industry - one that finds it economical to transport raw materials to the market place - The final product tends to be heavier than the major ingredient.
2. raw material - oriented industry - one that finds it economical to locate near the source of the main ingredient - Its products tend to be lighter than the prime ingredient.
3. foot-loose industry - one that will locate anywhere because of the low weight or volume of its output.

Obviously only a raw material-oriented industry would locate in an isolated community. Of the industries examined, the petro-chemical and mining are the rapid growth industries that could locate in the study area. These two industries, however, offer little in the way of employment opportunities for residents of isolated areas: The only abundant raw material for mining in isolated areas is peat moss and those operations of the petro-chemical industry that are carried on in isolated areas, are highly mobile. Much of petroleum exploitation has been automated while exploration activities, which do require a considerable manpower input, cannot be depended upon for a stable source of employment. Clearly, alternate industries with more appropriate locational characteristics should be found for isolated areas. Some are listed on the following page.

In some of the listed industries, growth has been slight or even negative and total employment is insignificant relative to the provincial totals. However, some of the industries, mainly the ones with immovable resources are likely to contribute substantially to the economies of these areas. The reference here is especially to oil and gas, forestry, fishing, trapping, mining (peat moss), and recreation and tourism.

Although the industries most likely to locate in isolated areas are not the rapid growth (in terms of employment) types,

^{1/} Easily, the most important criterion for the choice of one location over another is the minimization of transportation costs for the industry's products. Other considerations may be subsidies, cheap resources, cheap labour, or cheap energy.

LOCATIONAL CHARACTERISTICS OF ALBERTA'S
TEN LEADING GROWTH INDUSTRIES 1949-64

Rank	Industry	Location	Major Reasons for Location
1	Chemical (organic)	Raw material from petroleum refineries, which in turn, are market-oriented	Skilled labour, raw material input
2	Oil & Gas	Raw material	Immovable natural resource
3	Iron & Steel	Raw material (in urban areas)	Raw material is scrap metal
4	Service	Market (urban)	Consumers & base industries
5	Finance, Etc.	Market	
6	Construction	Market	
7	Retail Trade	Market	
8	Wholesale Trade	Market	
9	Non-Metallic Minerals	Raw material	Supplies of raw material and skilled labour
10	Public Utilities	Market	

LOCATIONAL CHARACTERISTICS OF RAW MATERIAL-ORIENTED INDUSTRIES

Industry	Location	Reason for Location	Growth (%)*
Agriculture	Raw material	Immovable land resource	-10
Construction	Market	Areas of expansion	+58
Fishing	Raw material	Immovable resource	included with trapping
Forestry	Raw material	Weight-losing quality of output	+63
Manufacturing	Footloose	Other than transportation consideration	+42
Mines & Quarries	Raw material	Immovable resource labour supply	+10
Oil & Gas			
1) exploration & recovery	Raw material	Immovable resource	
2) refining	Market	Skilled labour force	
Recreation & Tourism	Raw material	Immovable resource	
Trapping	Raw material	Immovable resource	-14

* Growth means an increase in employment from 1951-1961.

rapid employment growth is not the only measure of potential wealth production. Consideration must be given to trends in these industries with regard to net value of production, market conditions, and locational tendencies.

Agriculture: The agricultural industry in the whole of Canada is in a fairly rapid state of transition. Employment in agriculture is declining as units grow larger, more automated, and more efficient. In the decade, 1951-61, the number of farmers declined from 9,563 to 8,955; while the total area farmed increased by 350,000 acres in C.D. 15 (the Peace River area). (The study area is in Census Division 15). In addition to the employment decline, the agricultural producers have been suffering from the effects of a short term over-supply of wheat. Although wheat production is not recommended in the study area because of climate and soil conditions, the situation is likely to result in the established agricultural areas switching to production of coarse grains, oil seeds and marketing of grain through additional livestock. If agricultural enterprises are to survive in the study area, they would have to be the sort that produce coarse grains, oil seeds, and livestock.

In addition to a general climate in the industry which is hardly conducive to expansion, the initial capital required to establish an agricultural enterprise is rather formidable. For example, it is estimated that \$57.5 M ^{1/} are required to establish a cow-calf operation which is capable of returning an income of \$5 M per annum. Where this sort of development requires an investment of upwards of \$50 M to create work for one man, the creation of a job in most other industries requires an average outlay of \$4-6 M.

Forestry: While forest maintenance activities offer few opportunities for work to the residents of isolated communities, ^{2/}

^{1/} See especially Stelmaschuk, P.J.; "Agriculture in the Little Buffalo Area", An Analysis of the People and Resources in the Little Buffalo Lake Area, Research & Planning Division, Edmonton, 1969, p. 33.

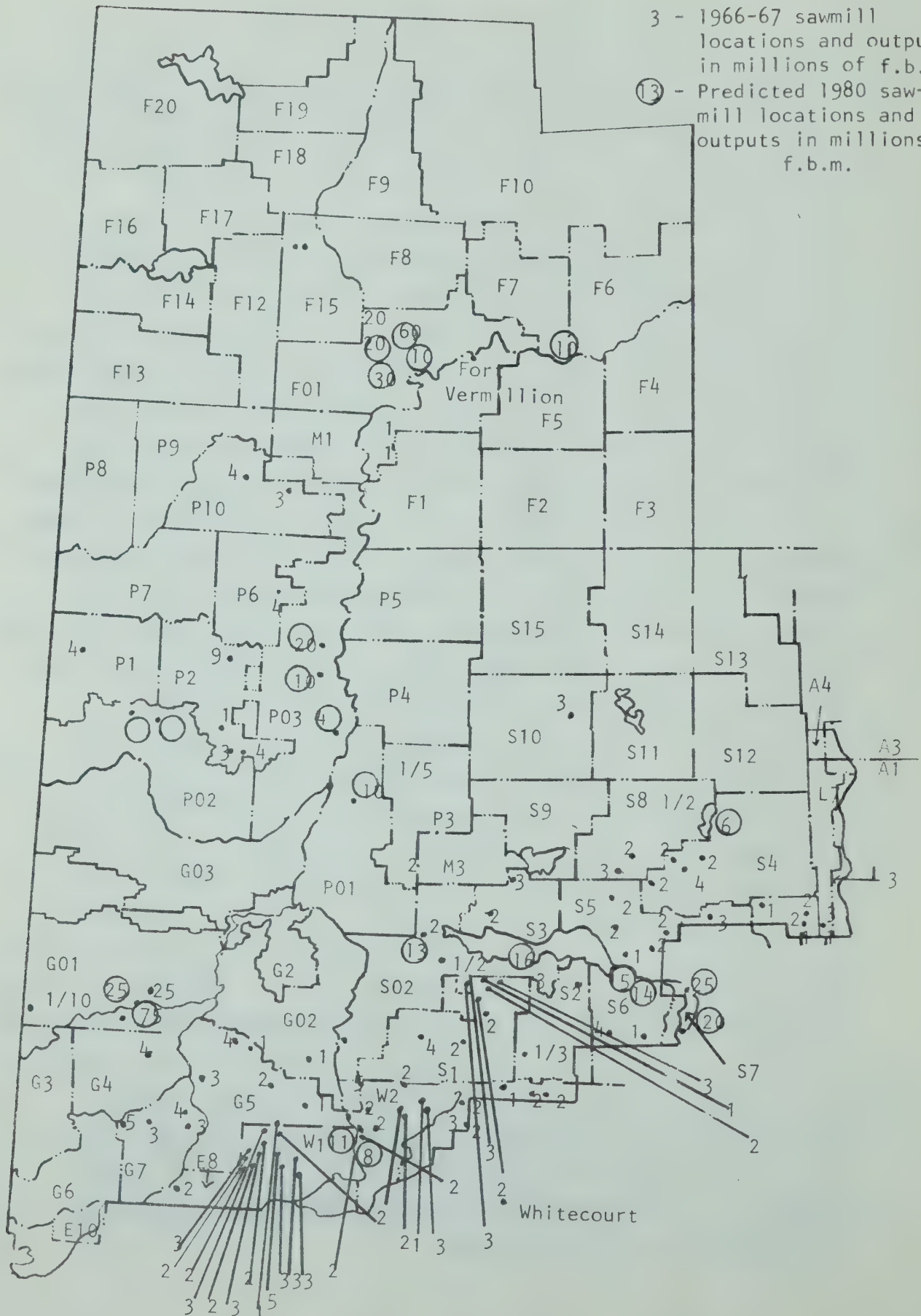
^{2/} Except for some lookouts, a few forestry personnel and an airport keeper or two; the bulk of the forestry personnel are in Edmonton or in other growth areas.

the exploitation of forest resources should be a major employer. Many of the communities are located near excellent timber stands. A large number of these stands have not been exploited to date because of the nature of access.

Until fairly recently, it has been a practice in the industry to move highly portable sawmills to timber berths where the logs were rough-sawn, then transported to bushmills or railway sidings for planing and drying. Because of the weight-losing characteristics of the raw material, location had to be as near the source as possible to minimize transportation costs which may be as high as 37% of total costs. Of late, however, an advance in transportation technology (High speed, 4-wheel driven skidders have largely replaced the slower track tractors used till recently.) has made it possible to transport logs to centralized, larger, more efficient mills. In addition, the weight-losing characteristics of lumber have been reduced with an increased use of chippers. The most up-to-date mills, then, are highly efficient, capable of processing lumber from more than one berth and able to process nearly the whole log with very little waste.

The above trends will undoubtedly bring about changes in the character of the industry. Locational characteristics will change from strictly resource-oriented to locations which take into consideration the volumes of lumber available in surrounding berths, the proximity of cheap transport, the availability of a skilled labour pool, the availability of natural gas for drying, etc.. It would appear that these large efficient mills will not locate in isolated areas but will rather be attracted to existing growth centres. In calculating labour demand of the industry the above factors were taken into consideration. It is quite unlikely that residents of isolated areas will be able to claim chipping, sawing, drying, and planing operations as base industries in the future. Logging operations are, however, expected to provide a substantial number of jobs for residents of isolated communities. The predicted locations of centralized sawmills are illustrated on the following map:

⑬ - Predicted 1980 saw-
mill locations and
outputs in millions of
f.b.m.



A Survey of Market Conditions for Forestry: The prospects for full employment for people in isolated areas in forestry, will depend largely on market conditions. At present, the industry in isolated areas is largely underdeveloped; a condition that would not prevail in the case of rapidly expanding markets or depleting resources in established berths. Market information that is available is generally optimistic in nature.

The most significant user of forest products is the construction industry. This industry is in turn, dependent upon population growth. In Alberta, the local construction industry has grown fairly rapidly. While the construction industry has grown steadily, production of lumber shows no such clear-cut trend. Forest production has shown large fluctuations in response to the export market, the introduction of alternate building products, the competition for skilled labour with the petroleum industry, etc. More recently, a downward trend is becoming evident; a result of intense competition from alternate building products such as concrete, metals, and plastics and because new regulations favouring long range sustained yields have tended to stop over-cutting in the more southerly locations.

The three most valuable products of the industry are coniferous lumber, with sales of \$16.8 Mn (1966-67 fiscal year); pulpwood, with sales of \$6.6 Mn and coniferous plywood logs with sales of \$2.5 Mn. Consumption of pulp and paper and the demand for products such as particle board have increased in the past few years at a faster rate than population increases. A recent study indicates that at present, 45,000 cords of poplar lumber could be marketed in the United States in the form of various finished products. Finally, the production of coniferous plywood logs has been rising rapidly for the past decade. It has been estimated on the basis of past trends that by 1975, the maximum sawlog production, based on existing quotas will be taken out. This study assumes that in the long run, the full forest potential of the study areas will be realized. Consequently, labour demand calculations are based on exploitation of the full quotas in the area.

The Oil Industry: There are four distinct spheres of activity in the oil industry: exploration, development drilling, field operations

and refining.

The seismic or geophysical activity requires a crew of some four highly skilled men and twelve general labourers. Although the bulk of the labourers require little or no skills, the oil companies insist on the employees having a Grade XII High School Diploma.

Development drilling crews consist of some twenty men. The average well takes approximately 24.5 days to drill. Again, few specialized skills are required of the majority of the men.

Field operations are concerned with storage and transport of oil and gas. These operations may include separation equipment, liquid and gas measuring facilities, receiving facilities, truck-loading facilities, and pipeline connections. Most of these operations are automated or remote-controlled and offer very few job opportunities. However, all the equipment in the field requires maintenance such as reading meters and charts or dewaxing pipes and a host of general maintenance and caretaking tasks. A field of ten producing wells could provide year-round work for three men. A gas extraction plant could provide employment for six men on a permanent basis and a sulphur plant could employ some fifty men. Additional employment could be generated by road construction and cutlines.

The trends in the industry are very encouraging. Employment in the prospecting phase has risen 33% from 1951 to 196- while the contract drilling employment has risen 70% over the same period. Over all, the petroleum industry has shown an employment increase of 167% from 1949 to 1964. Earnings from employment in the industry are very high. In the prospecting phase, the average wage was \$6,597 per annum in 1961. Contract drillers paid their employees an average of \$4,871 per annum, while oil and gas well employees received an average of \$6,429.

More recently, prospects for employment in the industry continue to look bright. The index of employment is up to 138 from 1961 (1961 - 100) and the average wage is \$9,412, the highest in Alberta's nine largest industries^{1/}. However bright the employment in the petroleum industry

^{1/} D.B.S.,; Occupation and Industry Trends and D.B.S.; Review of Employment and Wages and D.B.S.; Employment and Average Weekly Wage and Salaries

may be in total, for several reasons it is not the ideal employer for the residents of isolated communities. In the first place, both prospecting and development drilling operations are highly mobile, offering only short-term employment in any one particular location. At present, approximately 70% of the wells are drilled in winter when the muskeg is frozen. In addition, the industry insists on a high school diploma as a prerequisite for employment. This, too, would put residents of isolated communities at a disadvantage in this particular job market. Those jobs that may possibly be available to residents are in development drilling (which accounts for 60% of wells drilled in Alberta) caretaking operations, and providing supplies and supporting services for drilling operations. Jobs in the service industry would only become available if a community became more or less central to good petroleum prospects.

A survey of market conditions for the petroleum industry: Over the long run and on a world-wide scale, the demand for petroleum products will increase. Alberta petroleum products, however, do not enjoy access to the whole world market; they are sold locally and exported to parts of eastern Canada, the American mid-west, and the west coast. At the moment, the greatest threat to Alberta's share of the petroleum market is the Prudhoe Bay (Alaska) discovery and the good prospects for oil discoveries on the Arctic Slope. Should this source become commercially exploitable, it would displace some of the Alberta petroleum in the United States but a restructured market should still allow Alberta to maintain and perhaps even increase its exports.

The trends indicate that industry is quite healthy. Over the past few years, production has risen steadily at a rate of 12% per annum. From the 1967 to the 1968 season, the total footage drilled increased by 8.2%. (Between the periods January 1 to September 30, 1967 and January 1 to September 30, 1968).

Mining: There are some mineral deposits in northern Alberta such as the gypsum in the Wood Buffalo National Park or the 30-35% grade iron ore in the Clear Hills, but their eventual exploitation, (if indeed it does take place) is not expected to affect the economy of isolated areas, at least not in the foreseeable future.

One good prospect for the mining industry in the study area is the

abundance of peat moss. In northern Alberta, there are over 20 Mn acres of bog, though not all of it is capable of producing peat of marketable quality. A survey of the area should be undertaken to determine the actual amount of marketable peat moss that can be produced.

The national market for peat has been increasing but the United States is still the largest market for Canadian peat moss. At present, the United States obtains about 90% of its peat requirements from Canada and the market has been growing at an average of 9% per annum. Prices per ton have declined slowly. During the decade of 1957 to 1967, the price dropped from \$55.62 per ton to \$44.25 per ton f.o.b. point of shipment. This decline has resulted in expansion of many Canadian operations; expanding in order to increase efficiency. In 1968, the value of exports was 930,000 United States dollars.

THE MARKET FOR PEAT MOSS

MARKET	1956 (T)	1967 (T)	Increase (%)	
			1956-67	Average Annual
Export	113,000	221,000	96	8.7
Domestic	15,000	56,000	116	24.8
TOTAL	128,000	227,000	273	10.6

A viable peat moss operation would require an annual production of some 150,000 bales or 6,000 tons. In order to sustain this sort of production, 75-100 acres of bog with a minimum of 5-foot depth would be needed. A fairly labour-intensive operation would employ 10-14 men year round and would need some \$9,000 investment in equipment. All cost included, it is estimated that \$32.75 is required to produce a ton of peat moss. With the United States prices at \$44.75, a 6,000 ton operation would return a profit of some \$75,000.

Commercial Fishing: In all of Alberta employment in trapping and fishing has decreased by 14% from 1951 to 1961. (About 7% employment decrease is estimated in fishing). For the same period, however, commercial fish production has shown a fluctuating but never increasing trend. Evidently, some adjustment toward efficiency is occurring in the industry.

The production peaked during the 1960-61 season, then, dropped for three years in response to severely depressed markets.

Most of the fishing in Alberta is carried on in northern areas. Of the 5.5 Mn lb. produced in the north, Lesser Slave Lake accounts for approximately 4.3 Mn. Tullibee is the most prominent species caught, amounting to some 4.7 Mn lb. of the total 5.5 Mn lb. of northern Alberta production. The breakdown of the total catch of 1961 can be considered indicative of the relative availability of various species. Whitefish are the most sought after species for human consumption.

Sale of fish returns an estimated \$235,000 to \$250,000 annually in net income to northern fishermen. During the 1956 to 1966 decade the average price to fishermen ranged from 6.4¢/lb. to 8.5¢/lb. The price as marketed was 4¢-7.5¢ higher than the fishermen's price.

COMMERCIAL FISH PRODUCTION IN ALBERTA 1955-65

Year	Production (lb. All Species)
1955-1956	9,084,966
1956-1957	9,452,041
1957-1958	10,289,790
1958-1959	12,151,650
1959-1960	12,455,335
1960-1961	16,719,900
1961-1962	9,263,496
1962-1963	9,039,623
1963-1964	8,900,012
1964-1965	12,296,600

NORTHERN ALBERTA FISH PRODUCTION BY SPECIES 1961

Species	Pounds
Tullibee	4,694,815
Whitefish	788,700
Pickereel	290,900
Pike	81,600
Perch	29,700
Others	92,000

Actually, there are two movements afoot that should be a force in

making the industry more stable and efficient; the (already discussed) trend toward increased per-operator production and the establishment of the Freshwater Fish Marketing Board. The board has been established to assist the fishing industry in western Canada by acting as sole purchasers of catches from the prairies, Yukon, North West Territories and Ontario; an arrangement that should stabilize and raise prices by exerting pressure on the Chicago buyers. Other activities of the board will include products research, processing techniques, harvesting techniques, etc.

Generally speaking, the industry's prospects in Alberta appear quite bright. Production should increase as access to some lakes improve and as cold storage facilities become more prevalent. Some decrease in total employment is foreseen but per capita earnings for operators will increase.

Fish Farming: There is little doubt that the fish farming industry has a great potential as an employer and wealth-producer. For instance, Japan and Denmark, two countries where the industry is well developed, ship about 26 Mn lb. (approximate value - \$39 Mn) of rainbow trout annually into the United States market alone. In the United States itself, fish farming has achieved a commercial status, if the formation of the United States Trout Farmers Association (1953) is any indication. To date, fish farming in Canada on a commercial scale is non-existent. If the industry was to develop, it is quite likely that the Canadian trout could capture some of the United States market.^{1/}

Some tentative observations can be made with regard to the practicality of fish farming in northern Alberta. Firstly, the two species best suited are brook trout (Salvelinus Fontinalis) and rainbow trout (Salmo Gairdneri), with rainbow trout having by far the largest market value.

Many lakes in northern Alberta could provide an ideal habitat for trout. The above species grow best in water ranging from 55-68 degrees F with an acidity-alkalinity rating of pH 6.5-9 and an oxygen content of five parts per million or above. Water in most northern lakes is slightly alkaline and as a result, rich in crustaceans which would make an

^{1/} There are indications that legislation will be enacted in the United States to limit imports from Denmark and Japan to prevent introduction of diseases in North American waters.

excellent food for the trout. Moreover, many of the lakes freeze completely over in winter, so that native species that could be predators or competitors for food are absent. These could be eliminated in lakes which do not winterkill by poisoning out, but the operation is expensive. In lakes that do not winterkill, it is possible to preserve the young trout from predation by penning them in floating cages, (which would also facilitate harvesting) but this method requires supplemental feeding. There are many alternatives that may be attempted, a fact that suggests the need for additional research. It is certain that northern Alberta waters can support trout but the economies of trout production is not equally certain.

The Economics of Fish Farming^{1/}: Fish farming operations are rather simple. At the beginning of the cycle, planting stock are introduced into the lake; at the end, they are harvested, cleaned and frozen. United States hatcheries could deliver to Winnipeg 1 1/2" fingerlings at \$10 per 1,000. Fingerlings of 2 1/2 - 3" are sold for \$15 to \$20 per 1,000 at Winnipeg. The best results have been obtained by planting at a rate of 500 per acre usually in late spring or early summer.

Research by the Fisheries Research Board of Canada during 1968, has established that fingerlings planted in the spring would grow to marketable weight, without artificial feeding by autumn. Intensive feeding of animal by-products or fish meal, produced fish of 10" or more in one year. Additional research is required to determine whether natural or artificial feeding will produce the maximum returns per acre. The maximum poundage per acre in experiments where no artificial feeding was allowed was 110 lbs. per acre.

Processing and marketing costs are also 'borrowed' from other areas. It is estimated that harvesting and cleaning costs would be in the area of \$5-\$10 per 100 lb. Generally, it would be expected that fish would be netted from lakes but where a lake is stream fed, it is possible to

^{1/} The discussion here is restricted to winterkill lakes because of lack of information for other types of operation. Trout are predatory and cannibalistic so that even if other predatory species are disposed of, all fish must be taken each harvest.

construct fish traps which would reduce the cost. In the United States, retailers sell rainbow trout that have a live weight of about 1/2 lb. These are cleaned, with head on, packaged two per box, and sold for \$1.50 per package. The individual farmer's share of the retail price should be about \$1.00 per pound. It is not unreasonable to expect a yield of 100 lb./ac. so that gross income per acre would be in the magnitude of \$100 or \$70 - \$80/acre with production costs between \$20 to \$30/acre. In comparison, wheat crops on black soils produce an average of \$5.79/acre (1965).^{1/}

A breakdown of elements in a fish farming operation are outlined below: (This summary assumes a winterkill, existing body of water, adequate food supplies, etc. Please note, the model is constructed from information gleaned from the Canadian Fisheries Research Board, U.S. Wildlife Service's Fish Hatcheries Division and numerous trout farming publications).

A. Cost of Production

Pond Construction	- NIL
Cleaning of the Pond	- NIL
Stocking - 500 fingerlings (2 1/2 - 3")/acre @ \$20.00/thousand	- \$10.00/acre
Feeding	- NIL
Harvesting	- \$3.00/acre
Cleaning, Handling & Transportation (150 mi.) to a Processing Plant - \$7.00/cwt. and production of 100 lb./acre	- \$7.00/acre
Miscellaneous Operating Costs (Disease and Quality Control)	- \$5.00/acre
	<u>\$25.00/acre</u>

B. Returns

100 lbs. of fish/acre at a price to the farmer of \$1.00/lb.	- \$100.00/acre
TOTAL Returns	\$100.00/acre

C. Net Return to Labour (B - A0) - \$ 75.00/acre

Fur Farming: For several reasons, fur farming as an industry for development in isolated communities is not recommended. A good deal of

^{1/} Jones, A. R., et al; Farm Business Report, Farm Management Branch, Economics Division, Alberta Department of Agriculture, Edmonton, 1966. (Calculations by author).

managerial ability is required to operate a mink ranch, perhaps even more than a fish farm; mink ranches are capital intensive, requiring \$12,000 to \$15,000 for an operation of a minimal size; and pelt prices have been extremely low of late.

It appears that the combination of 'tight money' and a more general use by fashion designers of artificial furs have combined to reduce the demand for mink. Canada's exports of mink are extremely small. The value of mink pelts produced in 1967 was \$22.847 Mn while the rural value of exports was \$302 Mn. (Although this value is up from \$193 Mn of the previous year). Expansion in the industry in the Scandinavian countries and Russia is quite likely to fill any expanded demand in Europe. The United States and Britain purchase very few Canadian pelts. (Britain and United States together, purchased \$53,000 worth of pelts in 1966 and \$81,000 in 1967). In any event, Canada is a net importer of dressed mink pelts with imports values at \$658,000 (1966) and \$680,000 (1967) ^{1/}. In any case, both exports and imports in dressed furs are negligible. Undressed furs, however, fared somewhat better in the international market place. In 1967, exports of Canadian undressed mink pelts were valued \$19 Mn (about 73% to the U.S.) while imports were valued at some \$9.9 Mn (about 28% from the U.S.). Since Canada accounts for only a small proportion of the total world mink production, prices are set abroad and are at the mercy of fashions and the money supply. ^{2/}

No comprehensive study of the economics of mink production have been completed to date but some estimates of production costs are available. The major outlay is for food. It is estimated that approximately 100 lbs. of food is required to mature a mink. In northern Alberta, coarse fish are the best source of food. (About 70% of the food must be fish or meat or by-products or a combination of the two since mink are carnivours and a lower proportion may result in a lower quality pelt). Mink food consisting of coarse fish costs between \$6.25 and \$6.75 per the 100 lbs. required to mature an animal. Animal by-products from packing plants

^{1/} D.B.S.; Canada Yearbook, 1969, p. 558.

^{2/} High priced consumer products such as fur garments are first to suffer under 'tight money' situations.

and waste from dining rooms and restaurants, properly processed, can be substituted resulting in a drastically reduced feeding cost. This method is not practical in northern Alberta because of the distance to large population concentrations. Considering all costs, \$10 to \$12 are required to produce a mink pelt. In the more prosperous days, pelts sold for an average of \$15 to \$17 so that an operation capable of producing 500 pelts (a one man operation) could net the owner between \$1,500 to \$4,500 annually. National mink prices dropped from \$17.41 in 1965 to \$11.59 in 1967. ^{1/} Clearly, only the largest, most efficient operation can remain viable as long as average pelt prices remain at recent levels.

^{1/} D.B.S.; Canada Yearbook, 1969. pp. 558-559

DEFINITIONS AND METHODOLOGY

Isolated Communities: A more precise definition is given later but for the present, 'isolated communities', the subject of this study are a group of communities located in the vicinity of Lesser Slave Lake and north. The precise study area is outlined on a map. (Back cover). They are unincorporated settlements, often located in the Green Zone (an area withdrawn from settlement) and with the exception of Indian Reserves and Metis colonies, have no legal status.

For the purpose of this study, an operational definition of isolated community can be based on any or all of the following: geography, economy, and social or cultural characteristics.

- A. A community may be geographically isolated because it is accessible by:
 - 1) water only,
 - 2) air only,
 - 3) truck or all terrain vehicle only,
 - 4) in winter only.
- B. It may be isolated economically in that
 - 1) family incomes are less than \$3,000 per annum,
 - 2) the community population ranges between 80 and 1,000 persons according to the 1966 census.
- C. It may be isolated culturally and socially in that:
 - 1) communications with the larger social organization such as the Province or Canada are difficult or impossible.
 - 2) standards of health care, education and the general well-being are substantially lower than those of the dominant culture.
 - 3) In short, there is a failure to benefit materially and culturally from the achievement of the dominant society; an inability to enter into the social, cultural and economic mainstream of Alberta life.

Communities under consideration here are located in an area bounded by the 18th base line in the south, 25th base line in the north; R20, W4 in the east; and Range 27, W5 in the west.

Functional Economic Area: All of the economic activities which support a community are rarely carried on within the boundaries of the community itself. For this reason it was necessary to consider a larger area in the physical sense. The 'functional economic area' (FEA) is the maximum geographic region surrounding the community where the

demand for labour could most economically be met by the labour supply within the community. It is an area within which all or almost all the resident labour supply could be sold, or all or almost all necessary goods and services could be purchased. This may not be an orthodox definition of a functional economic area but this study is biased in the direction of near pre-occupation with the job-creating potential of the isolated communities under scrutiny.

FEA's for each community were drawn up on the following assumptions:

1. They are centered on the particular community under observation because it was assumed that the labour force will be equally mobile in all directions.
2. A radius of thirty miles was arbitrarily chosen as the maximum distance that a resident would commute to a job. Assuming good gravel roads would be constructed in the area within the next 10-20 years, it would take approximately three-quarters of an hour in travelling time to arrive at a job site on the periphery. Beyond one and one-half hours daily travel, it would probably be more acceptable to construct a camp at the site or draw a labour supply from another community.
3. The thirty-mile radius was chosen for yet another reason: It is unlikely in most cases that economically viable communities could be supported at a density much in excess of one to a radius of thirty miles (ie. 60 miles apart).
4. The FEA's were constructed in a shape of a diamond with points at primary compass points (i.e. N, E, S, W) equidistant from the center. This design has the effect of bringing boundaries at intermediate compass points nearer the center than the thirty-mile radius. Since roads generally run in primary compass direction, an individual may have to travel fifteen miles east then fifteen miles north to a job site northeast of his community (e.g.)

Besides the fact that these FEA boundaries are rather arbitrary, it should be understood that they are not sharp and distinct lines but rather they are general guidelines for estimating employment potential. Throughout the report the lines are adjusted to accommodate factors such as competing labour forces, the shapes of forestry management units, the characteristics of units where exploration activities take place, etc..

Economic Base of a Community: For the discussion here, two kinds of industries will be considered; the export industries and the service industries. Export industries generally exploit some resource within

the area for export without: Service industries provide goods and services within the community or area. Employment in export industries is termed 'basic', while in services industries it is called 'non-basic'. In area development, a scarce resource which has an export potential is generally located or exploited first; service industries and non-basic employment follows:

In large, more developed areas, (areas where nearly all goods and services can be provided locally) the ratio of basic to non-basic employment is approximately 1:1. It is unlikely that isolated communities would be able to produce all of the goods and services for industries such as forestry or petroleum or agriculture. Because many of the goods and services will have to be imported, the ratio of basic to non-basic employment will likely be in the order of 2:1, at least for the foreseeable future.

At the present time many of the communities have little or no resource exploitation, yet some services are provided. Services flow into the community while money to pay for them flows out. Physical resource development would seek to reverse this money flow. For example: money is invested to develop a physical resource and the export sector is established. As the resource is developed, the raw materials or goods in some stage of manufacture are shipped out in return for money in the form of wages. Wages, in turn, accumulate and a demand for consumer goods and products is established. This demand attracts service industries and additional employment since income (regional) is a function of employment. Clearly, at this point, the economy has expanded to something more than could have been expected from the original investment. The process is called the multiplier effect because an expansion in one segment of the economy has an effect on others and economic growth is more than proportionate to the original investment.

To illustrate more specifically: Assume that the export sector has attracted the service sector (retailers, finance and insurance services, etc.). Further, assume that all sectors are operational. Of the dollar earned from the export of a raw material or manufactured goods, assume \$.50 of every dollar earned is called the 'marginal propensity to consume locally'. (The remainder of the dollar not consumed locally leaves the

area in the form of profits, taxes or purchases outside the local community. A part of this amount, say \$.40 leaves the area to pay wholesalers for consumer goods, for services from other areas. This \$.40 of every dollar is referred to as 'income propensity of the local dollar'. Finally, assume that an investment is made in the export industry such that an additional \$1,000 per week is returned to the local community in the form of wages. Calculating only on the basis of the first step of the multiplier process $\frac{1}{1}$, the total income increase created by the original increase may appear as follows:

$$\text{Total income increase} = \text{initial increase from export industry} \times \frac{1}{1 - (\text{marginal propensity to consume locally} \times \text{income propensity of the local dollar})}$$

In dollars and cents:

$$\text{Total income increase} = 1,000 \times \frac{1}{1 - (.5 \times .4)}$$

Total income increase - \$1,250.

In application to isolated communities, the process may not approximate the above hypothetical case. The total income increase in isolated communities will depend on such factors as how labour-intensive the export industries become, the ultimate size of the community, the proximity of alternate or existing service centres, etc. However, since total regional income is generally a function of employment, service or local industries should be encouraged.

Over the short-run the process consists of production and consumption but over the longer run, additional forces can be expected to influence the economy of a developing area. As local income from exports and consumption increases, some of it is invested in the area in new plants, equipment, housing roads, etc. That portion of income that is derived from activities in the area which is invested locally is referred to as the 'marginal propensity to invest locally'.

To illustrate: suppose that .2 or 20¢ of every dollar of income

$\frac{1}{1}$ The entrepreneurs and employees in service and local industries would also spend on local consumption. Each step of the process would return a declining amount until the returns become so small as to be insignificant.

derived from local economic activity is invested locally. Of each dollar invested locally, suppose that \$.50 remains as local income. (The remainder may 'leak out' as payment for investment goods). The multiplier effect, now becomes a function of both consumption and investment and will be increased correspondingly. Total income increase from the original increase may be calculated as follows:

$$\text{Total income increase} = \text{Increase in income from export or consumption activities} \times \frac{1}{1 - (\text{Marginal propensity to consume locally} \times \text{income propensity of the local dollar} + \text{propensity to invest locally} \times \text{income propensity of local investment})}$$

Substituting:

$$\begin{aligned} \text{Total income increase} &= 1,000^* \times \frac{1}{1 - (.5 \times .4) + (.2 \times .5)} \\ &= 1,000 \times \frac{1}{1 - (.5 \times .4) + (.2 \times .5)} \\ &= 1,000 \times \frac{1}{.7} = 1,429 \end{aligned}$$

* As in previous example - $1,000 \times \frac{1}{.7} = 1,429$

To sum up, the economic base of a community is the potential of its resources to provide life's needs. The economic base does not, however, give a complete picture of the community's potential growth. Given that population is related to income, the growth of population in a community should depend upon the sum total of all income generated which would include income from the export industry(ies) plus the product of the much-illustrated multiplier effect.

LITTLE BUFFALO LAKE AND CADOTTE LAKE

Because the two communities are in such close proximity (12 miles apart) it is necessary to group them within the same functional economic area. Consequently, employment opportunities (other than land based) would likely affect both communities. Therefore, both communities will be discussed under this one section in-so-far as employment opportunities are concerned.

Location: Cadotte Lake is located in Township 86, Range 16, West of the 5th Meridian and Little Buffalo is in Township 86, Range 14.

Population: Because the two communities are not incorporated, population statistics had to be arrived at in an indirect way. In addition to this difficulty, it would appear that the two communities are dense population clusters surrounded by widely dispersed and isolated homes. The population of the area is as follows:

Table 1 POPULATION OF THE LITTLE BUFFALO LAKE AREA - 1961 - 1966 ^{1/}

TWP	RGE	1961	1966	#	Increase %	Annual Ave(%)
85	13	15	28	13		
	14	0	0	0		
	15	0	0	0		
86	13	0	0	0		
	14	115	179	64		
	15	33	39	6		
87	13	0	0	0		
	14	0	0	0		
	15	3	0	-3		
TOTALS/AVE		166	246	80	48.2	9.6

^{1/} Surveys Branch; Population By Townships and Incorporated Centres (map), Alberta Department of Highways, Edmonton, 1961 and 1966.

In 1968, the population of Little Buffalo (the community) was estimated at 155; 51 registered Indians, 88 Metis and 16 white people. Cadotte Lake (community) population was estimated at 78.

Population Characteristics: Because of previously-mentioned difficulties the following statistics, of necessity, are compiled on an area basis. The area includes: Little Buffalo Lake, Cadotte Lake, Martin River and the northeast shore of Lubicon Lake. The following table shows the population distributed by age groups and sex:

Table 2 POPULATION OF THE LITTLE BUFFALO LAKE AREA BY
AGE GROUPS AND SEX - 1966 ^{1/}

Age Group	Male		Female		Total	
	#	%	#	%	#	%
0-4	18	13.6	19	18.8	37	15.9
5-9	24	18.2	13	12.9	37	15.9
10-14	17	12.9	15	14.9	32	13.7
15-19	17	12.9	14	13.9	31	13.3
20-24	9	6.8	3	3.0	12	5.1
25-34	11	8.3	12	11.9	23	9.9
35-44	9	6.8	11	10.9	20	8.6
45-54	7	5.3	5	5.0	12	5.1
55-64	11	8.3	3	3.0	14	6.0
65-69	5	3.8	4	4.0	9	3.9
70 and +	4	3.0*	2	2.0	6	2.6
TOTALS	132		101		233 ^{2/}	

* May not sum up to 100% due to rounding.

^{1/} D.B.S. special computer print out., 1966.

^{2/} The difference between totals of Tables 1 and 2 is due to the fact that the geographic boundaries from whence the two sources drew their data were not quite coterminous.

Assuming that the productive ages in the population are 20-64 inclusive, then 34.7% of the population can be considered as the potential labor force. However, if present tendencies to employ the women in the labor force as homemakers continue, then 47 jobs will be required for the men in the labor force.

The rate of population growth (See Table 1.) has, in the past, been largely influenced by in migration. As a consequence, the growth rate has been high. The average rate of 9.6% per annum, can be considered as the optimum population growth. Considering the ethnic and geographically-determined characteristics of the population, 4.5% per annum would be a more realistic long-range growth rate. If we assume 9.6% a high rate of growth and 4.5% a conservative estimate the magnitude of population increase could be as follows:

Table 3
POPULATION PROJECTIONS
FOR THE LITTLE BUFFALO AREA

Year	Projection #1*	Projection #2**	Male Labour Force***	
			#1	#2
1961	166	166	34	34
1966	246	246	50	50
1971	365	307	74	62
1976	541	382	109	77
1981	802	477	162	96

* Based on 9.6% annual increase.

** Based on 4.5% annual increase.

*** Based on 20.9%(47/233) of population employable males. (See Table 2 and definition of labour force above).

The educational facilities in the two communities consist of a one-roomed school at Cadotte Lake with one teacher providing education from Grades 1 through 7. At Little Buffalo there are two single-roomed schools with two teachers providing education through Grade 7. School attendance is tabulated as follows:

Table 4 SCHOOL ATTENDANCE IN THE LITTLE BUFFALO LAKE
AREA BY GRADES 1968-69 ^{1/}

Grade	Little Buffalo Lake	Cadotte Lake	Total	% of Total
Opportunity	-	2	2	3.2
1	7	8	15	24.2
2	4	3	7	11.3
3	1	6	7	11.3
4	6	6	12	19.3
5	5	4	9	14.5
6	3	2	5	8.1
7	3	2	5	8.1
TOTALS	29	33	62	

Beyond Grade 7, students must leave the community to continue their education; very few do. From a sample population, it was found that approximately 25% were in the 6-18 year group (school-aged group). By 1980, if our population projections prove correct, educational facilities will be required for 120-200 students in the areas.

Physical Facilities: There are three one-roomed schools in the two communities and living accommodations for pupils who have to travel great distances to attend schools. This residential complex is operated by the Christian Missionary Alliance.

Health services are provided by a nurse and a dental hygienist from the Peace River Health Unit. Both pay monthly visits to the communities. A physician (M.D.) and a dental officer visit annually. Hospital services are obtainable from Peace River.

There is only one road linking Cadotte Lake to Peace River through Three Creeks. From Peace River to some distance beyond Three Creeks, the road is well-gravelled and can be considered an all weather road.

^{1/} Abstracted from records of the Northlands School Division #61.

Beyond this point its condition deteriorates till access is possible only in ideal weather (i.e. dry weather or winter access only). Other means of communicating with the outside world are provided by a grass air strip maintained by the Department of Lands and Forests, an N.A. railine at Peace River, a fair weather road north to Bison Lake and radio communication via a small portable radio operated by the Catholic Mission at Cadotte Lake. The communities are on the fringe of the reception areas of CHFA and CBX of Edmonton and CKYL of Peace River.

Electric power is provided by two portable generators, one in each community. Water at Little Buffalo Lake is obtained from a reservoir in summer and melting snow in winter while at Cadotte Lake, the water supply is taken from the lake. Tests on water in both communities have at times revealed traces of human contaminants.

NATURAL RESOURCES OF THE LITTLE
BUFFALO LAKE AREA

Forestry: To the present time, forestry has contributed little to employment in the two communities. Forestry, however, has considerable potential as an employer. The Little Buffalo FEA includes the following management units: (These are listed with allowable cuts. If only a part of the unit lies within the boundary of the FEA, estimated allowable annual cuts are given.)

Table 5 FOREST POTENTIAL IN THE
 LITTLE BUFFALO FEA

Management Unit	All	or	Portion	Quota Cut
P3			north half	2.1 mmfbm ^{1/}
P4			southeast half	2.4
S9			west corner	0.0 ^{2/}
S10			western half	4.6
TOTAL				9.1

The above total represents the approximate potential forest production of the area; the actual production has shown a considerable fluctuation but except for the 1967-68 season, has not even approached the potential.

In estimating the impact of the employment ability of this industry on the FEA, the estimates will be based on the maximum possible.

Consequently, the following, rather optimistic assumptions are made:

1. Production will trend upward until the optimum of roughly 9mm fbm is reached and maintained.

2. All the logging, sawing and planing operations will be carried out within the area and present level of technology continues.

^{1/} million board feet

^{2/} no timber stands considered to be merchantable

3. The labour force requirement for the operations in (2) will be drawn from the FEA.

4. Access will be determined by geographic proximity, i.e. Roads will be built wherever required.

Table 6 TOTAL FOREST PRODUCTION IN THE LITTLE BUFFALO LAKE AREA (9mmfbm)* FOR THE YEARS - 1960-1968

Management Unit	Years							
	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68
P3	1.126	0.402	1.243	2.073	0.219	0.078	0.062	2.079
P4	0.048	0.039	.055	0.056	0.004	0.011	0.009	0.000
S10	0.000	0.000	1.801	0.905	0.026	0.710	3.546	4.038
TOTALS	1.174	0.441	3.099	3.034	0.249	0.799	3.617	6.117

*Figures rounded to nearest thousand.

The following table represents the potential, maximum labour force requirement for logging, sawing and planing 9mmfbm of lumber:

Table 7 MANPOWER REQUIREMENT FOR FOREST-RELATED INDUSTRY IN THE LITTLE BUFFALO FEA

Activity	Seasonal Employment	or	Year-Round Employment
Sawlog Logging	32*		13
Planing	15*		6
Sawing	26**		11
TOTALS	73		30

*A season of approximately 100 days

**A season of slightly more than 100 days

To obtain more realistic figures, (the above are the maximum possible) several factors should be considered in view of their influence on the labour force supply and demand. To begin with, the communities are not at the center of the best coniferous or poplar stands in the region. Access to what merchantable timber there is,

presents a problem of some magnitude. The railway line is some 45 miles away, a road system is non-existent, and the trend is to whole log and haul the logs to a central mill. In ten years, it is estimated that half of the lumber in the area will be whole logged and hauled to High Prairie. At present there are two portable mills in P3; one more is expected in S10 but this one will be more accessible from Loon Lake than Little Buffalo. Another consideration that may influence employment is the employer's particular evaluation of the quality of the labour force in the area. If a logging operator prefers crews from a distant area to those from an FEA into which he has moved, he may hire the more distant crews and compensate in some way for the additional transportation problems. In this area, the labour force at Utikuma can be considered as competitors. Having considered all of these influences, the following labour demand estimate may be more reasonable than the 'maximum': (The maximum estimate can be considered an optimistic one and the following, a pessimistic one.)

Table 8 LIKELY MANPOWER DEMAND FOR FOREST RELATED
INDUSTRY IN THE LITTLE BUFFALO FEA

Activity	Employment (MYE)*
Coniferous Logging	9
Lookout	3
Service	2
TOTAL	14

*Man Year Equivalents

Fishing: There are seven lakes of appreciable size in the Little Buffalo FEA but only Haig Lake, 30 miles due north, has records of commercial fishing activities. (91-14-W5) Whitefish is the commercial species; others are either very rare or are considered too coarse for human consumption. There are two over-riding factors that influence fishing in the area: the extremely variable demand and fluctuation of infestation rates of whitefish by triaenophorus crarsus (a parasite in

whitefish that renders the species unfit for human consumption).

Smaller 'Class B; lakes are fished only when the market price is extremely high or infestation in larger, more accessible lakes causes the fish to be unusable by humans.

The following table summarizes the commercial fishing situation:

Table 9 FISH QUOTAS AND WHITEFISH PRODUCTION
 AT HAIG LAKE - 1961-1969

Year	Quota	Whitefish		
	All Species	LB.	@ Value*	Total*
61-62	-	83,000	12.1¢	10,043
62-63	100,000	9,000	14.2	1,278
63-64	-		15.7	
64-65	-		17.4	
65-66	-		17.9	
66-67	-		20.9	
67-68	75,000	150	20.1	30
68-69	50,000			
TOTAL/AVE.		92,150	16.9	11,350

*Historical dollars

If we assume that last numerical value under the heading "Quota" is taken as a sustained productive capacity of the lake, then \$8,450 ^{1/} could be retained to the fisherman if only whitefish were caught. Since it is impossible to catch only whitefish, the average per pound price estimate must be revised downward to 13¢. At this price, the fishing industry could sustain one fisherman with a net income of \$6,000 annually. ^{2/} Although there are other lakes in the FEA, we found no indications of their productive capacity.

^{1/} At the average per pound price

^{2/} $50,000 \times .13 = 6,500 - 500(\text{costs}) = \$6,000$

Oil: On the basis of past trends, oil exploration activity is on the decline in the area. The oil industry is potentially an employer of some magnitude but work in the industry is characteristically seasonal and the labour force is highly mobile. An average well takes some 25 days to drill and work in muskeg is carried on in winter only. In addition some technical ability is required. Consequently, the oil industry provides very limited employment opportunities in the area.

The following tables sum up drilling activity and employment potential. Again, the potential is ideal.

Table 10 DRILLING ACTIVITY IN THE
LITTLE BUFFALO LAKE AREA ^{1/}, 1965-68

Year	Total Drilled	Abandoned	Producing, Capped, Suspended		Manpower Requirement
			#	%	
1965	59	40	19	32.2	124
1966	68	44	24	35.3	143
1967	45	32	13	28.9	95
1968	38	28	10	26.3	80

"Manpower Requirements" are calculated on the following averages: 24.5 days per well including moving and erecting a rig, 20 men per rig. The seismic activity which preceded the drilling has the same limitations on employment ability as the drilling as far as the local labour force is concerned but some jobs on cut lines which required few skills may have been created. This brief flurry of activity which reached its climax in 1966 delineated an oil field of some importance in the area around Utikuma and Loon Lake. Any employment created in its wake would have little effect on the local labour force.

Agriculture: A reliable estimate of the agricultural potential in the area is not possible because of limited, available information. The following indicators should, therefore, be used with caution. The

^{1/} A square land area enclosed by TWP's 81-90 and RGE's 9-18. Oil and Gas Conservation Board Annual Reports for given years.

Little Buffalo FEA encloses an area of 920M acres of which 575M acres are potentially arable, 207M acres are doubtful arable and the remaining 138M are pasture, water and woodland. Soils in the area consist mainly of clay-loam belonging to the grey wooded or podzolic-grey wooded groups. Although rainfall is adequate, the productive capacity of the soil is limited to forage production by the very short growing season. The soils could potentially produce forage and coarse grains and the area could provide pasture.

Information on returns to labour and management is available for the surrounding area. In order to produce a minimum net return of \$4,000, a ranch unit would require approximately 160 animal units with a land input of 4,000 acres of pasture and 640 acres of hay. For a coarse grain operation, 800 acres would give average returns of \$4,000 in the area or a \$5 return per acre. (These returns are based on averages and do not take into account the quality of inputs such as management's innovativeness or labour's efficiency.) Potential land use information is not available at present so that it is impossible to calculate the number of agricultural units that could be established without reducing timber resources. Under present legislation, no agricultural units can be established because the area is entirely within the 'green zone'.

LOON LAKE

Location: The Community of Loon Lake is located on the eastern shore of the lake in Township 87, Range 9, West of the 5th. Peace River, approximately 75 miles west-southwest of Loon Lake, is the nearest large center. Loon Lake is well located in its proximity to a variety of natural resources. Red Earth and Loon Lake Oil Fields are only a short distance away; approximately 17 mmfbm of lumber are harvested from an area within a 30 mile radius: there are several sawmills in the area and several more are expected to locate there.

Population: In 1968, the population of the settlement was estimated at 150; 23 registered Indians, 121 Metis and 6 whites.

Table 11 POPULATION OF THE LOON LAKE AREA, 1961-66 ^{1/}

TWP	RGE	Population		Population Increase		Ave. Annual (%)
		1961	1966	#	%	
86	8					
	9					
	10					
87	8					
	9					
	10	102	149	47	46	9.2
88	8					
	9					
	10					
TOTALS/AVE		102	149	47		9.2

As Table 11 indicates, the population in the area is centered in one settlement.

Population Characteristics: Past population increases in the area have been very high; a result of a high rate of in-migration.

^{1/} D.B.S.; Population By Townships and Urban Centres, 1961 and 1966.

The following table projects the population to 1981:

Table 12 POPULATION OF LOON LAKE FOR 1961-1966^{1/}
AND PROJECTIONS TO 1981

Year:	1961	1966	1971	1976	1981
Population:	164	169	183	224	274

Table 13 POPULATION OF THE LOON LAKE AREA* BY
AGE GROUPS AND SEX - 1966^{2/}

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M%	F%
0-4	20	23.0	19	21.1	39	22.0	11.23	10.73
5-9	15	17.2	14	15.6	29	16.4	11.66	11.33
10-14	7	8.0	14	15.6	21	11.7	10.65	10.26
15-19	5	5.7	10	11.1	15	8.5	9.24	9.12
20-24	7	8.0	6	6.6	13	7.3	7.23	7.37
25-34	9	10.3	9	9.9	18	10.2	12.43	12.39
35-44	9	10.3	9	9.9	18	10.2	12.67	12.75
45-54	8	9.2	2	2.2	10	5.6	10.36	10.41
55-64	4	4.6	3	3.3	7	4.0	7.39	7.40
65-69	2	2.3	3	3.3	5	2.8	2.54	2.78
70 & +	1	1.1	1	1.1	2	1.1	4.60	5.46
TOTALS	87	**	90		177		100.00	100.00

* Includes Lubicon Lake

** May not equal 100% due to rounding

From Table 13, it is evident that Loon Lake's population has a proportionately smaller potential labour force than Canada and a proportionately larger dependent group. Only 37.3% of the population are in their productive years (20-64 incl.), while 62.7% are dependent; 58.6% require education (0-19 incl.) and 4.1% (64 +) are in the 'retired'

^{1/} D.B.S. - special computer print-outs

^{2/} Ibid

age groups. If we consider only the male labour force, Loon Lake's population has 37 men or 20.9% of the total who are eligible. A sample of residents in isolated communities, however, had 21.9% of the men in the potential labour force. Assuming that the latter proportion will hold for the Loon Lake population in the future, the local economy will have to create some 60 jobs for a labour force that can be expected by 1981.

Information regarding the residents' educational levels is not available. Educational facilities in the community consist of one two-roomed school offering Grades 1-8 (incl.). In 1967, 31 children attended school including 5 from the oil camp at Red Earth. During the 1968-69 school year, 47 children were registered. Since the school caters to 6-14 year olds (Grades 1-8 incl.), the actual attendance very nearly equals potential attendance.

As is characteristic of many schools in the area, capital and operating expenses on a per student basis are very high. The capital investment was \$718.67 and the operating costs were \$454.48 per student per year. If we assume the school-attending age group as the population 5-19 (incl.) years of age and if the sample proportion of 25% holds true for this group at Loon Lake, then by 1981 an estimated 70 students will require educational facilities.

Physical Facilities: Northlands School Division operates one two-roomed school providing education through Grade 8. Living accommodations for the staff consist of one house trailer.

There are no health facilities in the community. The Peace River Health Unit's clinic makes annual visits. Atikameg is the nearest community where dental services are available. The nearest hospital is at Peace River.

There are three roads to Loon Lake at present; one from Slave Lake, one from Atikameg and one from Nampa. All the roads were either built for or are primarily used by the petroleum industry. The road between Slave Lake and Loon Lake is of the "all weather" standard, the other two would have to be upgraded. Community members are constructing a bridge across Loon River to provide access to the Slave Lake-Loon Lake road.

There are no electrical or water distribution systems in the community at present. Communication with the outside world is conducted via a battery-operated radio provided by the Christian and Missionary Alliance. The community is within the reception area of CKYL, Peace River and in the fringe reception areas of CHFA and CBX, Edmonton.

NATURAL RESOURCES IN THE LOON LAKE AREA

Forestry: The forest maintenance activity in the area will create seasonal work for two people in the capacity of lookouts at the Red Earth and Whitefish towers which are both within the Loon Lake FEA. Other, less certain jobs, will be created within the sphere of this activity in firefighting, road construction, reforestation, etc.

The Loon Lake FEA contains within it parts of the following management units: S9, S10, S11 and S15. Loon Lake Settlement is situated in the center of S10, a management unit which is within the boundaries of the Loon Lake FEA. Tabulated production from the above management units follows:

Table 14 TOTAL FOREST PRODUCTION IN THE LOON LAKE AREA
1960-1968 in mmfbm

Management Unit	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68
S 9		0.080	0.063					
S10	-	-	1,801	0.905	0.026	0.710	3.546	4.038
S11	-	-	-	-	-	-	-	-
S15	-	-	-	-	-	-	-	-
TOTALS	-	0.080	1,864	0.905	0.026	0.710	3.546	4.038

S9 has not produced since 1963 mainly because the stands are too scattered to make the production economical. Neither #11 nor #15 have produced timber to date because of the nature of the access to them. All three of the units that appear as marginal producers will begin

to yield shortly as the access is being improved. In total the FEA could yield 16.8 mmfbm annually.

Using the following assumptions, the optimum labour force demand for the forest-related industry is calculated below:

1. Geographic proximity is the only determinant to job access.
2. Labour demand in the FEA will be met by the Loon Lake labour pool.
3. All operations - logging, sawing, planing will be carried out within the boundaries of the FEA.

Table 15 MAXIMUM MANPOWER REQUIREMENT BY THE
FOREST-RELATED INDUSTRY IN THE LOON LAKE AREA

Activity	Man Year/Seasonal Jobs
Saw log logging	59/100
Sawing	28/(9 men year-round and 19-6 mo.)
Planing	50/120
TOTAL	137 men

A number of known situations and likely future events are almost certain to substantially reduce the number of men who will actually be hired in the FEA. There are presently two portable sawmills in S10 and two more will probably be erected in a year or two and some improvement is bound to occur in road access to the timber stands. Both of these events will tend to speed up harvesting in the area so that it will approach the area's potential and both will have a tendency to maximize use of the resident labour force. Some of the timber will be whole logged and hauled to Enilda for further processing for the trend in the industry is toward larger, centralized mills. Most of the timber from S9 will likely be whole logged and hauled to trackage south. Labour pools at Peerless Lake and Graham Lake will offer some competition. Allowing for all of the above factors, the following labour demand calculations could represent likely employment in the forest-related industry:

Table 16 LIKELY MANPOWER DEMAND IN FORESTRY AND
FOREST-RELATED INDUSTRY IN THE LOON LAKE FEA (TO 1980)

Activity	Seasonal	Year- Round	MYE
Lookouts	2		1
Misc.	4		2
Logging	55	22	22
Sawing	21	8	8
TOTALS	82	30	33

Fishing: Most lakes in the FEA, including Loon Lake itself, are too shallow to support commercial fishing. The nearest lake with a record of commercial fish production is Peerless Lake and fishing on this lake is covered in the section dealing with the Peerless Lake Settlement. Possibly, commercial fish farming may produce some revenue and create some jobs but no study of this possibility has been carried out to date.

Oil and Gas: In order to survey the activities in the petroleum industry, the FEA boundaries are modified to include following area: TWP's 83-92 (incl.) and RGE's 5-14 (incl.). Drilling activities and the status of wells drilled are tabulated below:

Table 17 DRILLING ACTIVITY IN THE LOON LAKE AREA, 1965-68 ^{1/}

Year	Total Drilled	Abandoned	Producing, Capped, Suspended # %	Manpower Requirement
1965	59	42	17 28.8	124
1966	72	47	25 24.7	151
1967	66	45	21 31.8	139
1968	53	41	12 22.6	112
TOTALS/AVE	250/62.5	175	75 /30.0	526/131.5

^{1/} Oil and Gas Conservation Board Annual Reports for given years.

Although a considerable number of jobs were created in the area by the petroleum industry during the past few years, the residents of Loon Lake were able to seize the opportunity for employment in only a few cases. Oil companies invariably recruit their labour in large centers such as Edmonton or Calgary: few of the residents were aware of the impending acceleration in drilling activities and fewer still, had the financial resources to travel to recruiting centers. Consequently, a visit to the area in 1967, revealed that only 10 to 12 men from Loon Lake had found employment in the oil industry.

In areas where access is not ideal, drilling tends to be a seasonal operation. (In this case, 70% of the wells were drilled in winter.) Most of the wells drilled were of the developmental variety characterized by sweeping surges of activity. In the Loon Lake Area, drilling activity peaked in 1966 and has declined steadily since. The seismic activity, which preceded the drilling, generated some jobs in road construction and cut lines. Following the drilling, the resultant pipelines and related structures, will require some six maintenance personnel. These positions are of a permanent variety. In 1967, the Red Earth and Loon Lake Oil Fields accounted for 0.42% of the total Alberta crude oil production.

Agriculture: Limitations to agricultural development that are characteristic of the whole of northern Alberta are also present in the Loon Lake FEA: The growing season is only long enough for coarse grains and forage; topography near the settlement is flat but becomes undulating to rolling to the north, east, and south; forest cover varies but clearing is necessary; the soil is thin, belonging to the grey-wooded soil group; and about 50% of the FEA has drainage problems. Of the total land area of 1,152,000 acres in the FEA, 276,000 are potentially arable, 392,000 acres are classed as doubtful arable and the remaining 484,000 are classed as pasture and woodland. Using the same criteria for agricultural units as those on page some 80-150 units may be developed in the FEA. Again, the reservation must be stated that agricultural development could only take place at a considerable expense in terms of capital outlay and in reduction of

forest resources. The loon Lake FEA is entirely within the green zone and withdrawn from settlement.

PEERLESS LAKE AND TROUT LAKE

The two settlements, Peerless Lake and Trout Lake, are within 13 air miles of each other so that it is necessary to place them within the same functional economic area. Background information is rare for isolated communities but some background material is available for these two settlements from Dr. S.B. Smith's Integrated Resource Use At Peerless Lake, Alberta.

The settlers seemed to have been attracted by a particular life style that they could enjoy in the area and which they probably could not enjoy almost anywhere else. Settlers in the area conceive of themselves as the last remnant of the primitive Indian Society, shielded from absorption into the dominant culture by their isolation. To some extent, the particular quality of the economic resources in the area perpetuate this point of view. The economic base (viz. fish and wild-life) seems to be substantial and contact with whites through economic activity seems to be mostly limited to the fur trade. For the most part, the settlers have been able to obtain their life needs directly from their community and its immediate surrounding areas. The social and spiritual lives of the two communities revolve around the two missions; a Protestant one at Peerless Lake and a Roman Catholic one at Trout Lake.

Location: The Settlement of Peerless Lake is located on the north-east shore of Peerless Lake in TWP 88, RGE 4, West of the 5th meridian; Trout Lake Settlement is on the west shore of Graham Lake in TWP 86, RGE 4, some 13 miles due south. The nearest large center is Slave Lake, approximately 100 air miles due south; Peace River is approximately 110 air miles west-southwest and Fort McMurray is approximately 126 air miles east.

Population: Peerless Lake and Trout Lake are population centers in the area but some homes exist outside the community boundaries. The population of the communities and the immediate surrounding areas is tabulated in Table 18.

Table 18 POPULATION OF THE PEERLESS LAKE AREA, 1961-1966 ^{1/}

TWP	RGE	Population		Population Increase			
		1961	1966	#	%	Av	Annual %
86	4	83	85	2	2.4		.48
87	4	22	10	-12	-54.5		-10.90
88	4	59	74	15	25.4		5.08
TOTALS/AV		164	169	5	3.0		0.60

As indicated above, the population of the area has increased at a rate of only 0.6% which is more indicative of problems with residence requirements experienced by census takers than the true rate of increase. The population of Peerless Lake Settlement is estimated at 88; 48 registered Indians, 27 Metis and 8 whites.

Population Characteristics: Population statistics from D.B.S. are available for small areas in the form of special computer print-outs. Table 19 contains population information for an enumeration area that includes both settlements and some area on their periphery.

Of the total population, 2/3 (66.7%) are dependent on a potential labour force of 61 people (aged 20-64 incl.). Because there are few opportunities for female employment, in practical terms, 18.0% of the population in the productive age groups will have to support the remainder. In the Canadian population, 25.08% of the total are males in their productive years.

For reasons discussed previously the rate of population growth is estimated at 4.5% per annum. If the proportion of males in their productive years to total population remains constant, 56 men will require employment. If, however, the average age increases as birth-rate decreases (a fairly likely event) then 68 men will need jobs.

^{1/} D.B.S. Population By Townships and Urban Centers, 1961 and 1966.

Table 19 POPULATION OF THE PEERLESS LAKE AREA BY
AGE GROUPS AND SEX - 1966 ^{1/}

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	19	19.8	20	23.0	39	21.3	11.23	10.73
5-9	15	15.6	19	21.8	34	18.6	11.66	11.33
10-14	10	10.4	7	8.0	17	9.3	10.65	10.26
15-19	13	13.5	9	10.3	22	12.0	9.24	9.12
20-24	6	6.3	5	5.7	11	6.0	7.23	7.37
25-34	11	11.5	11	12.6	22	12.0	12.43	12.39
35-44	8	8.3	6	6.9	14	7.7	12.67	12.75
45-54	6	6.3	3	3.4	9	4.9	10.36	10.41
55-64	2	2.1	3	3.4	5	2.7	7.39	7.40
65-69	2	2.1	2	2.3	4	2.2	2.54	2.78
70 & +	4	4.2	2	2.3	6	3.3	4.60	5.46
TOTALS	96	*	87		183		100.00	100.00

* May not equal 100% due to rounding

Table 20 POPULATION OF THE PEERLESS LAKE AREA FOR 1961-1966²
AND PROJECTIONS TO 1981

Year:	1961	1966	1971	1976	1981
Population:	164	169	207	254	311

Physical Facilities: Educational facilities consist of a one-roomed school with instruction for Grades 1 through 8. During the 1968-69 school year there were 25 students attending the Peerless Lake school. A house trailer served as a teacherage for one teacher. For the same year, 36 pupils were distributed from Grades 1 through 7 in the two-roomed Trout Lake school. The two teachers at Trout Lake are housed in a teacherage. In 1966, approximately 40% of the population was in the

^{1/} D.B.S. special computer print-outs
^{2/} D.B.S. special computer print-outs

school-aged groups (5-19 incl.). If this ratio holds true to 1981, school facilities will be required for some 125 pupils.

There are no health services located within the boundaries of the Peerless Lake FEA. A nurse from Wabasca conducts a monthly health clinic; the nearest dental services are at Wabasca; and the nearest hospital is at Slave Lake, some 100 air miles south.

The road system in the area is inadequate for relatively free movement of people and goods. Roads are rarely more than truck trails that can be negotiated by nothing short of four-wheel driven vehicles. However, within the near future, the road transportation situation is expected to improve considerably. The road to Trout Mountain is being improved and will eventually be extended to Fort Vermilion. A road connecting Peerless Lake with Wabasca and ultimately Slave Lake is expected to materialize shortly. A road to connect the two communities in the FEA is also expected in the near future.

There is no power, water or telephones in the FEA. Communication links with the outside world are maintained via battery-powered radios; one at Peerless Lake which is maintained by the Department of Lands and Forests and one at Trout Lake, maintained by the Catholic mission. The two communities are within the reception range of two radio stations; CBX, Edmonton and CKYL, Peace River.

Forestry: There are three forestry lookout towers within the 30-mile radius of Peerless Lake: Trout Mountain, Panny and Tee Pee Lake. These could provide certain part-time employment for the residents of the settlements. Other work in forest preservation and management will certainly be available but an estimate of the magnitude would be completely speculative.

The Peerless Lake FEA is located in the midst of some excellent and as yet, largely untapped forest resources. Parts of management units #10, S11, S12, S14 and S15 are within the boundaries of the FEA. The total allowable cut for the whole area is estimated at 17.5 mmfbm; 1.5 in S10, 6.2 in S11 and 9.8 in S14. The two remaining management units, S12 and S15 have very little merchantable timber. Because of the nature of access, almost all of the production has been limited to S10.

Table 21 TOTAL FOREST PRODUCTION IN THE PEERLESS LAKE

AREA 1960-1968 in mmfbm								
MU*	60-61	61-62	62-63	63-64	64-65	65-66	66-67	67-68
S10			1.801	0.905	0.026	0.710	3.546	4.038
S11								
S12								
S14								
#15								
TOTALS			1.801	0.905	0.026	0.710	3.546	4.038

* Management Unit

Although the area within the boundaries of the FEA could yield 17.5 mmfbm annually, the total area that is accessible to the Peerless Lake labour pool is estimated to be more than twice as much, viz. 36.8 ^{1/}. Using previously-discussed assumptions, the calculations for the optimum labour demand follow:

Table 22 MAXIMUM MANPOWER REQUIREMENTS BY THE
FOREST RELATED INDUSTRY IN THE PEERLESS LAKE AREA

Activity	Employment	
	Seasonal	or Year-Round
Logging (36.8 mmfbm)	129	52
Sawing (20.0 mmfbm)	59	24
TOTALS	188	76

The two factors likely to influence the labour demand most are competition from nearby labour pools and the nature of access. All of the quotas in S11 belong to the Wabasca Lumber Co-op, a co-operative community project. The Co-op intends to build processing facilities west of Wabasca. Both the Wabasca and Loon Lake labour pools can be expected to offer competition. In addition, there is no well-developed road system and the nearest railway is over 100 miles away. Plan- and drying operations are usually located near a labour pool; near cheap transportation, preferably rail; and near a source of cheap fuel, preferably natural gas. In all cases, the Peerless Lake area is lacking. (The nearest gas well is 40 miles away.) However, in view of the quality and quantity of timber in the area, it may well be economic to develop the access. Only a feasibility study could indicate the economics or diseconomics of centralized operations in the area. Because

^{1/} For example, management unit F2 is entirely outside the FEA but the unit is nearer the Peerless Lake labour pool than any other. The situation is quite similar for much of S15 which is largely outside the boundaries of the FEA.

centralization could drastically affect the employment potential in the area, it is difficult to estimate labour demand on scanty information that is available. Table 22 should be a fair indication of the magnitude. In addition to the demand as outlined in the table, 8 men will be required part-time in miscellaneous and service jobs and 3 more will have part-time work as forestry tower lookouts for a total of 199 jobs.

Fishing: Some potential exists in the FEA for relatively viable fishing enterprises. Again, the actual production has fallen well short of the potential and most of the activity has had limited benefits in the area. The characteristic fluctuations in fish production of any northern Alberta area are a result of inter-related factors. The most important are: quotas imposed on various lakes from year to year, scarcity of adequate transportation and varying demand for different species. Table 23 outlines the area's fish production.

The average harvest for given years was 61,960 pounds. Of the species harvested, whitefish is the most palatable and consequently brings the highest returns to the fisherman. Although a relatively large number of licenses were issued, few people in the area were able to substantially supplement their income by fishing. A total of 81 licenses were issued for an average return of \$189.18 per license. Relatively well-equipped fishermen from outside the area fish the area when the demand is brisk and when other more accessible lakes have yielded their quotas. Residents of the communities do not have the capital to increase volumes of production or to improve transportation.

A review of quotas for the past several years indicates that the lakes of the FEA could produce some 200,000 lb. of fish annually. If these were sold at 20.0¢ per lb. on the average, the lakes could generate \$40,000. In terms of employment, 10 fishermen could gross \$4,000 per annum each or if allowed \$500 for operating expenses, their earnings would amount to \$3,500 net.

Oil: The most important statement that could be made about the petroleum industry's activity in the area is that for the most part, exploration and development has passed by the Peerless Lake FEA. Within the larger area, bordered by TWP 84-93 and RGE's 25 W 4 to 9 W 5, however, some activity has been evident. The two important fields that were de-

Table 23 TOTAL FISH PRODUCTION IN THE PEERLESS
LAKE AREA, 1963-1968 (lbs.) ^{1/}

Lake	Location*	1963-64	1964-65	1965-66	1966-67	1967-68
Corn	88-25	5,829	-	-	-	--
Equisetum	89-5	207	9,700	-	3,800	17,273
God's	90-2	-	-	-	-	21,032
Goodfish	89-5	-	-	-	-	9,105
Graham	89-5	-	-	101,000	22,969	25,720
Long	89-4	-	-	N/A	16,300	16,895
Long	90-2	-	-	-	--	-
Peerless	88-5	-	-	144,000	-	-
Roun	89-4	8,260	2,796	-	7,064	8,351
Vandersteene	90-3	-	-	50,000	-	-
TOTALS		14,296	12,496	295,000	50,133	98,290

* To locate, the order is TWP, RGE, W. of - Meridian. Corn Lake is west of the 4th meridian, the remainder are west of the 5th.

Table 24 FISH PRODUCTION BY SPECIES IN THE PEERLESS
LAKE AREAS, 1967-1968

Species	Production		Value to Fisherman	
	lb.	% of Total	Per lb.	Total
Whitefish	63,483	64.6	20.1	12,760.08
Pike	24,309	24.7	5.7	1,385.61
Pickere1	6,266	6.4	15.9	996.29
Tullibee	4,232	4.3	4.3	181.98
TOTALS	98,290			15,323.96

^{1/} Abstracted from records of Fish and Wildlife Division, Alberta Department of Lands and Forests.

lineated during the peak of activity in 1966-67 were Red Earth and Loon Lake, both southwest of the Peerless Lake Area.

Table 25 DRILLING ACTIVITY IN THE PEERLESS LAKE AREA, 1965-68

Year	Total Drilled	Abandoned	Producing, #	Capped, %	Suspended	Manpower Required*
1965	45	29	16	35.6		82
1966	59	34	25	42.4		124
1967	52	32	20	38.5		109
1968	47	35	12	25.5		99
<hr/>						
TOTALS/AVE	203/51	130	73	/27.8		414/103.5

* MYE

There is some renewed activity (1969) north of Peerless Lake in the Trout Mountain area but to date, no major reserve of oil or gas has been uncovered. In any event, if the problems that accompany employment in the petroleum industry could be overcome, the settlers of the Peerless Lake area would have a good potential employer in the firms that are carrying on oil exploration and development.

Agriculture: Even if there was potentially arable land in the Peerless Lake FEA, the climate would severely limit agricultural development. As it is, the half of the FEA that is classified as 'doubtful arable' may support some ranching units. One half of the land is pasture and woodland, one half is doubtful arable; the prospects for agriculture are not good.

Recreation and Tourism: The area has an excellent potential for the development of tourism. At a glance, there are plentiful beaches and water, fish and game are plentiful and it is a forested wilderness area that is as yet, largely unspoiled. At this point, a word of caution: In order to develop the tourist trade, access will have to be improved. If a fairly adequate transportation network is established in the area, all of the resources may be exploited including those on which the settlers are dependent for life's needs. Formal and informal training will be necessary if the subsistence technique of hunting/gathering

and occasional job is to be replaced by the more efficient subsistence technique consisting of permanent work in exploitation of natural resources.

THE CHIPEWYAN LAKES AREA

The settlement at "Chip" Lakes has a very short history. It literally sprang up when a Mennonite missionary and a group of native followers became disenchanted with the rapid rate of commercialization at Wabasca. The isolated, inaccessible site was chosen because this kind of location would minimize outside influences. Although the resources in the area are limited, the settlers of Chip Lakes have required relatively little welfare assistance.

Location: The Settlement of Chipewyan Lakes is located on the south shore of the lake after which it was named (91-22-W4). The neat, well-ordered community is set amid gently rolling hills which are covered by birch and poplar woods. Assisted by a development grant, the settlers were clearing plots for vegetable gardens in the summer of 1969. The nearest community of some stature is Wabasca, some 70 air miles to the south. Fort McMurray is the nearest trading center, some 80 air miles to the east-southeast.

Population: Between 1961 and 1966 census years the population of Chip Lakes rose from 47 to 84 and by 1968, the population was estimated at 150; divided evenly between registered Indians and Metis.

Population Characteristics: The rapid, annual population growth of 15.7% ^{1/} is indicative of rapid in-migration. The rate of increase is not expected to be as great in the future because excessive in-migration would defeat the purpose for which the community was formed. On the other hand, it is unlikely that natural increase could be arrested to any great degree. Assuming that the population will increase at an average for isolated communities viz. 4.5%, the following projections are calculated in Table 26.

The population of Chip Lakes is very young as evidenced in Table 27. The potential labour force consists of approximately 1/3 of the population and the remainder are in dependent age groups. However, the

^{1/} The figure refers to the rate of increase between 1961 and 1966, years for which census information is available.

Table 26 POPULATION OF THE CHIP LAKES AREA 1961-68
AND PROJECTIONS TO 1981

Year:	1961	1966	1968	1971	1976	1981
Population:	47	84	150	170	208	255

Table 27 POPULATION OF THE CHIP LAKES AREAS BY AGE
GROUPS AND SEX, 1966 ^{1/}

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	10	24.4	14	32.6	24	28.6	11.23	10.73
5-9	7	17.0	6	14.0	13	15.5	11.66	11.33
10-14	4	9.8	4	9.3	8	9.5	10.65	10.26
15-19	5	12.2	0	0.0	5	6.0	9.24	9.12
20-24	2	4.9	7	16.3	9	10.7	7.23	7.37
25-34	5	12.2	4	9.3	9	10.7	12.43	12.39
35-44	2	4.9	2	4.6	4	4.8	12.67	12.75
45-54	2	4.9	0	0.0	2	2.4	10.36	10.41
55-64	1	2.4	3	7.0	4	4.8	7.39	7.40
65-69	2	4.9	1	2.3	3	3.6	2.54	2.78
70 & +	1	2.4	2	4.6	3	3.6	4.60	5.46
TOTALS	41	*	43					

*May not sum to 100% due to rounding

potential male labour force consists of approximately 14%. Based on average labour force in isolated communities of 22% and the population projections in Table 26, it is projected that the local economy would have to provide jobs for 56 men by 1981.

Physical Facilities: During the 1968-69 academic year, 22 children attended the one-roomed school. One teacher provided instruction for Grades 1 through 8. Northlands School Division provided one teacherage

^{1/} D.B.S., special computer print-outs

for the teacher. In 1966, 31% of the population were in the school-attending age groups (5 through 19). If the proportion holds constant to 1981, 79 students will require educational facilities.

Health services at Chip Lakes are provided by a nurse from Wabasca who visits the community monthly. There is a nursing hospital and dental facilities at Wabasca. The nearest hospital is at Fort McMurray but in severe cases, the Emergency Air Ambulance Service can transport patients to Edmonton for specialized care.

Surface transportation is possible only during the winter months via the only road out of the community. This road links Chip Lakes to Wabasca. The Department of Lands and Forests maintains a strip on the western shore of the lake.

Communication with the outside world is via a private short wave set in the general store. There is also a radio in the store-keeper's private aircraft. Drinking water is obtained from a well and a local power plant supplies the light and power for the community.

NATURAL RESOURCES IN THE CHIP LAKES AREA

Forestry: The Chip Lakes FEA is well east of the most attractive merchantable timber stands in the area. It is in the center of Management Unit S13 but this unit has an allowable cut of only 2.5 mmfbm annually. Parts of the following units also extend into the FEA: A4, S12, S14, but timber in these units is sparse. In all, a total of 3.5 mmfbm could be taken out of the FEA, annually. It would take 12 men 100 days to log this quantity and another 10 men could saw the lumber in 120 days. In man year equivalents, the harvesting of forest products could create about 10 jobs.

There is one lookout tower near by and four more at some distance to the northeast. Forestry protection service, then, may yield up to one or two more jobs.

It will be some time before the timber resources are exploited in the area. There is little merchantable timber and access is difficult.

Fishing: Although there are 6 lakes of considerable size in the area from 1960 to 1968 only Burnt Lake has produced fish commercially. Chipewyan Lake did yield 81,567 lb. of whitefish in the two years 1958-60, but since then the production of other species and other lakes (other than Burnt Lake) has been negligible. During the period, 1960-68, commercial yields have been reported for only 5 of the 8 years. These averaged 9,623 lb. of whitefish per year. Assuming that whitefish are the only species that could be marketed ^{1/}, a review of quotas in the area indicates that the lakes could sustain a yield of 26,000 lb. per annum. At the 1967-68 average prices, the returns to fishermen would be \$5,226. One fisherman with operating expenses of \$500 could realize a net return of some \$4,700 per annum. Expansion of the industry, such as an introduction of fish farming, would be less feasible here than in an area with better access.

Oil: Petroleum exploration and development activity, even at its peak was not very intensive in the Chip Lakes area. The following table illustrates the activity for stated years in an area bounded by TWP's 87-96 and RGE's 17W4-1W5.

^{1/} The areas inaccessibility would necessitate a very high per pound return. Per pound returns on coarse fish are a fraction of returns for whitefish, goldeyes, pickerel and trout.

Table 28 DRILLING ACTIVITY IN THE CHIPEWYAN LAKES AREA, 1965-1968

Year	Total Drilled	Abandoned	Producing, Capped, Suspended #	%	Manpower Required*
1965	8	7	1	12.5	17
1966	11	11	0	0.0	23
1967	9	9	0	0.0	19
1968	5	5	0	0.0	11
TOTALS	33	32	1		70/17.5

* MYE

Since no new fields were uncovered in the area during the peak of the exploration activity, the petroleum industry seems to have lost interest in the area. In any event, for reasons previously discussed, settlers from Chip Lakes would be even more at a disadvantage than most of the residents of isolated communities because of the difficulty of travel out of the area.

Agriculture: In addition to the climate characterized by an extremely short growing season, the lack of potential arable or even doubtful arable land in the FEA precludes extensive development of viable agricultural units. Barring some unforeseen developments, the area does not appear to have any comparative advantages for agriculture and in addition to land and climate limitations, has the disadvantage of poor access.

THE WABASCA-DESMARAIS AREA

Settlers in the Wabasca-Desmarais area were attracted there initially by a Hudson's Bay Company trading post which was established in 1900. A Catholic mission was established at Desmarais shortly afterwards. At the turn of the century the area was able to provide an abundance of fish and game.

Population: The settlement pattern in the area is chaotic. Some settlement has occurred from the northern tip of North Wabasca Lake, along north and east shores of South Wabasca Lake and south to the southwest shores of Sandy Lake. (83-25-W4 to 79-22-W4) The Settlements of Wabasca and Desmarais are the two centers of population concentration. There are no less than five Indian reserves scattered throughout the area along the shores of North and South Wabasca Lakes and Sandy Lake. Total population of the area is estimated at 2200; 1140 registered Indians, 1,000 Metis and 60 whites. Sandy Lake Settlement has an additional population of 125. Statistics for the non-reserve population are available for 1961 and 1966. It is likely that the on-reserve population in the area increased at a more rapid rate than the 3.6% per annum indicated below but statistics for reserve populations were not available.

Table 29 NON-RESERVE POPULATION OF THE WABASCA-DESMARAIS AREAS, 1961-1966

TWP	RGE	Population		Population Change		
		1961	1966	#	%	% Per Annum
79	22	85	78			
80	24	0	14			
80	25	684	817			
TOTALS		769	909	140	18.2	3.6

Population Characteristics: Using a base population estimate of 2,325 (1968) and an average rate of increase for isolated communities of 4.5%, the following table projects population to 1981:

Table 30 POPULATION OF THE WABASCA-DESMARAIS AREA, 1968
AND PROJECTIONS TO 1981

Year:	1968	1971	1976	1981
Population:	2,325	2,639	3,233	3,960

The Dominion Bureau of Statistics makes available a finer statistical break down in the form of populations by age groups and sex on an enumeration area basis. Unfortunately, the boundaries of the enumeration areas are not coterminus with the FEA boundaries so that the population values include some areas outside the area of interest but the proportion of people in the various groups should be quite useful. The statistics do not include the on-reserve population.

Table 31 POPULATION OF THE WABASCA-DESMARAIS AREA
BY AGE GROUPS AND SEX, 1966

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	111	16.2	120	19.6	231	17.8	11.23	10.73
5-9	112	16.3	97	15.9	209	16.1	11.66	11.33
10-14	107	15.6	75	12.3	182	14.0	10.65	10.26
15-19	79	11.5	71	11.6	150	11.6	9.24	9.12
20-24	47	6.9	42	6.9	89	6.9	7.23	7.37
25-34	62	9.1	62	10.1	124	9.6	12.43	12.39
35-44	52	7.6	50	8.2	102	7.9	12.67	12.75
45-54	35	5.1	33	5.4	68	5.2	10.36	10.41
55-64	41	6.0	42	6.9	83	6.4	7.39	7.40
65-69	18	2.6	6	1.0	24	1.9	2.54	2.78
70 & +	21	3.1	13	2.1	34	2.6	4.60	5.46
TOTALS	685	*	611		1,296			

*May not sum to 100% due to rounding

If we assume that the labour force consists of males in the 20-64 age groups (incl.) then 237 men made up the potential labour force which

in percentage terms represents 18.3% of the total population. At this rate, 725 men will require employment by 1981. If, however, the average proportion of men in the labour force is used in the calculations, 21.9% of the population or 867 men will require work by 1981.

If the school attending age groups are assumed to include the proportion of the population between 5 and 19 (incl.), then 41.7% of the total population should have been attending school. If the proportion remains constant to 1981 and if the 5 to 19 year olds choose to remain in school, 1,651 students will require educational facilities. The two schools at Wabasca and Desmarais had 206 and 314 students respectively in the 1968-69 school year for a total enrollment of 520.

Physical Facilities: There are two schools in the FEA; the one in Demarais is staffed by 13 teachers and was providing instruction to 314 students while the Wabasca school was staffed by eight teachers and had an enrolment of 206. Grades 1 to 9 (incl.) are taught at Desmarais and Grades 1 to 6 (incl.) are taught at Wabasca. There are 6 teacherages at the former; 3 at the latter. A hostel operated by the Catholic mission caters to students whose homes are at some distance from the school.

Wabasca has numerous health services; many of which have to be shared with other isolated communities. There is a ten-bed and two bassinets nursing hospital and permanently installed dental facilities. Two nurses provide services for the Wabasca area and for Sandy Lake (in the Wabasca FEA), Trout Lake, Peerless Lake and Chipewyan Lakes. Slave Lake Hospital provides the services of two doctors who travel to Wabasca one or two times per week. For the severely ill, the Emergency Air Ambulance Service may be used to move the patient to hospital in Slave Lake or if specialized care is required, to Edmonton or Calgary.

One good road runs from Slave Lake to the Wabasca-Desmarais area. There are 29 more miles of gravelled roads in the vicinity. Air transportation is able to utilize the 4000 foot gravel and clay runway in favorable weather but during wet spells, float-equipped aircraft must be used.

Residents of Wabasca-Desmarais obtain their water from a local plant; those in outlying areas obtain their water from wells, streams or lakes. The community of Wabasca has a "trench" sewer disposal system.

Power is supplied by a diesel generator. In 1968, 56% of the Indian homes were electrified. The exact proportion of Metis homes with power is not known but it is lower than the proportion of Indian homes. Alberta Government Telephones services exist in several homes as well as in the nursing station, the mission and the home of the band secretary. The community lies within the fringe reception area of CHFA and CBX, Edmonton and CKYL, Peace River.

It may do well to insert at this point, a general observation on the quality of housing in the north of the province. In Wabasca, as in other northern communities, many of the houses are constructed of logs or rough lumber and consist of a single large room. In almost all cases the heat is provided by an airtight heater. The quality of housing on reserves is generally better than the quality of housing of the Metis.

NATURAL RESOURCES IN THE WABASCA-DESMARAIS AREA

Forestry: In the Wabasca-Desmarais FEA, the forestry protection service offers a number of jobs. Pelican and Doucette towers are located within the FEA, Maskwa and Median are somewhat more distant than the 30-mile limit, nevertheless four jobs of the part-time variety could be provided for lookouts. In addition, five other people are employed at the forestry station at Wabasca; three junior forestry officers, one senior officer and one junior position as an airport keeper. The forestry officers require a considerable amount of training while the airport keeper performs general maintenance tasks. It is expected that by 1981, retraining and upgrading programmes will have raised the quality of the labour force to the level where local people will be able to fill all of these positions.

Parts of Management Units S4, S5, S8 and S12 are in the FEA. In total approximately 21.5 mmfbm in annual allowable cut from the above units are in Wabasca-Desmarais. Past production from the management units are tabulated in Table 32.

To present S12 has not been exploited and is unlikely to be exploited until road access is improved. However, the total production of the remaining units seems to be approaching capacity. Of the maximum, annual, allowable cut of 36.8 mmfbm, 21.5 mmfbm are within the borders of the Wabasca-Desmarais FEA. Harvesting and processing (ie. logging, sawing, planing) of this amount of lumber would require 175 men on a part-time basis under present levels of technology.

Table 32 TOTAL FOREST PRODUCTION IN THE WABASCA-DESMARAIS ARE
1960-1968 - in mmfbm

MU	'60-61	'61-62	'62-63	'63-64	'64-65	'65-66	'66-67	'67-68	MAAC*
S 4	-	2.301	4.099	9.470	6.258	1.653	6.327	-	11.7
S 5	13.954	14.163	13.725	20.624	15.870	15.740	11.405	-	12.1
S 8	.664	.753	1.366	3.108	3.457	3.937	9.514	-	11.0
S12	-	-	-	-	-	-	-	-	2.0
	14.618	17.217	19.190	33.202	25.585	21.330	27.246	-	36.8

* Maximum Annual Allowable Cut

There is no end to the combinations of possible events that may influence the forestry sector and consequently the labour requirements in the Wabasca area. The main factors to consider are: (a) S12 has a relatively small merchantable stand and is not likely to be developed in the near future due to the nature of access; (b) the Wabasca-based lumber co-op will likely hire local men even when operating some distance outside the FEA; (c) some timber will be whole logged to Slave Lake from S4, to Enilda and Smith from S8; (d) the Wabasca-Desmarais labour pool will be favoured in comparison to pools from other communities because the area is least isolated; (e) at least one operator is committed to harvesting poplar lumber in the areas. All things considered, a labour pool of 119 men on a part-time basis will be required to harvest and process 22.5 mmfbm of lumber. In addition, the forest protection service will require 4 part-time employees and 5 full-time. It is difficult to estimate with any degree of accuracy the number of part-time and the number of full-time jobs that will be available in the FEA because of the uncertainty of summer access. In terms of Man Year Equivalents, the labour demand will equal about 55.

Fishing: There are six lakes on which commercial fishing has been carried on.

Table 33 FISH PRODUCTION IN THE WABASCA-DESMARAIS AREA
BY LAKE PRODUCING, 1963 - 1968 ^{1/}

Lake	Location	1963-64	1964-65	1965-66	1966-67	1967-68
McLeod	80-1-W5	-	-	-	-	-
Mistehae	80-2-W5	17,044	21,000	-	8,050	34,350
N Wabasca	81,-26-W4	67,375	121,500	N.A.*	60,118	74,030
Sander	80-2-W5	N.A.	-	-	-	-
Sandy	79-22-W4	16,765	12,062	16,739	22,158	41,330
S Wabasca	79,24-W4	200,712	500,000	59,783	204,652	62,360
Weaver	80-1-W5	-	-	-	-	-
TOTALS		301,895	204,562	76,522	294,978	212,070

^{1/} Abstracted from records of Fish and Wildlife Division, Department of Lands & Forests.

* Statistics not available..

Table 34
FISHING QUOTAS IN THE WABASCA-DESMARAIS AREA
BY SPECIES 1964-1969 2/

Lake	1964-1965	1965-1966	1966-1967	1967-1968	1968-1969
McLeod	20,000 (W) *	-	-	-	-
Mistehae	20,000 (P _k)	-	20,000 (P _k & P _e)	20,000 (P _k & P _e)	20,000 (A11)
N Wabasca	50,000 (W)	75,000 (W) 50,000 (P _k & T)	75,000 (A11)	-	-
Sander	5,000 (W)	5,000 (W)	-	-	-
Sandy	10,000 (W) 6,000 (P)	15,000 (W) 8,000 (P)	-	15,000 (W) 8,000 (P)	4,000 (W _a)
S Wabasca	50,000 (W) 10,000 (A11)	50,000 (A11) 75,000 (P _k)	75,000 (P _k)	75,000 (A11)	75,000 (P _k & T)
Weaver	-	-	-	-	-

* W - Whitefish, P_k - Pike, P - Pickerel, P_e - Perch, T - Tullibee, W_a - Walleye

1/ Abstracted from records of Fish and Wildlife Division, Department of Lands & Forests.

A review of quotas issued for lakes indicates that for the most part the actual catch taken has been considerably less than the potential.

For the 1967-68 season, a total of 62 licenses were issued in the area. Calculating from the total in Table 35, the average return per license was \$392.19. The above average, however, is misleading. A few large scale, highly mobile, well-equipped fishermen received a large share of the total revenue from fishing in the FEA. The local residents were hired to do menial tasks for short periods of time at modest wages.

As illustrated in Table 35, returns for whitefish are relatively high but infestation of this species by the parasitic traienophorus crassus often limits the commercial value. Table 35 indicates that approximately 2/5 of the catch consists of whitefish. A biological survey of the two 'Wabasca' Lakes indicates that they could sustain an annual yield of 250,000 lb. of fish.^{1/} A review of quotas, would indicate that the same lakes could sustain a yield of an additional 35,000 lb. or a total of 285,000. All of the lakes in the FEA could

Table 35 FISH PRODUCTION BY SPECIES IN THE
WABASCA-DESMARAIS AREA, 1967 - 1968

Species	Production		Value to Fishermen	
	lb.	%	%	\$
Whitefish	86,615	40.8	71.6	17,409.62
Tullibee	78,118	36.8	13.8	3,359.07
Pike	38,420	18.1	9.0	2,189.94
Pickereel	8,358	3.9	5.5	1,328.92
Perch	509	0.2	0.1	28.50
TOTAL	212,070	*	*	24,316.50

* May not sum to 100% due to rounding

^{1/} See Turner, W. R.; Preliminary Biological Survey of the Wabasca Lakes Area, Fish and Wildlife Division, Alberta Department of Lands and Forests.

sustain an annual yield of 325,000 lb., which at average prices could return \$42,550 to the fishermen. Intermis of employment, 11 men could gross \$4,000 per annum or receive a net return of \$3,500 if expenses could be kept down to \$500. Some additional employment could be generated if lakes on the fringe of the FEA were exploited for coarse fish. The abundance of small bodies of water within the FEA boundaries make fish farming a possibility but no information on fish farming enterprises in northern Alberta is available to date.

Oil: The Marten Hills Field lies at the southern top of the FEA. Almost all of the drilling has taken place in and around this field. Generally, drilling activity has been increasing over the past four or five years. The increase, however, is not expected to continue indefinitely. When the field is fully developed only a few production jobs will be available such as those in the gas processing plant presently under construction. Of the isolated communities under consideration, Wabasca-Desmarais is especially vulnerable to the competing labour pool at Slave Lake.

Table 36 DRILLING ACTIVITY IN THE WABASCA-DESMARAISS
AREA, 1965 - 1968

Year	Total Drilled	Abandoned	Producing, Capped, Sustended #	%	Manpower Required*
1965	21	20	1	4.8	44
1966	38	26	12	31.6	80
1967	44	24	20	45.5	92
1968	46	33	13	28.3	97
TOTALS /AVE	149/37	103	46	/27.6	313/78.2

* MYE - Man Year Equivalents

Agriculture: With the exception of a small area at the very southern tip of the FEA, the land in the area is classified as pasture and woodland. Some ventures into agriculture have been attempted on a minute scale: Five owners on the reserves had a total of 101 head of cattle and two farmers had a total of 70 acres under cultivation. Undoubtedly, climate and soil will restrict any possible agricultural development, both in extent and the types of commodities to be considered. Data for relatively accurate assessment of the agricultural potential is not available.

THE CALLING LAKE AREA

The Settlement of Calling Lake is located some 36 air miles north-northeast of the Town of Athabasca on the east shore of the Lake after which it was named. The Town of Slave Lake is some 64 air miles, nearly due west. According to maps of the Department of Highways, the location is TWP 72, RGE 21, West of the Fourth Meridian.

Population Characteristics: In 1968, the population of Calling Lake was estimated at 420; 80 registered Indians, 100 Metis and 240 white people. Population growth has been rapid, (8.2% per annum) a reflection of a high rate of in-migration. The following table outlines population trends and projects the population to 1981 on a basis of an annual increase of 4.5%:

Table 37 POPULATION OF THE CALLING LAKE AREA
1961, 1966, 1968 AND PROJECTIONS TO 1981

Year	1961	1966*	1968	1971	1976	1981
Population**	269	379	420	477	584	715

* Estimate

**Population in Range 21, Townships 71 and 72

As in many isolated areas, the dependent age groups contain a relatively large proportion of the population. There are few opportunities for women in isolated communities to pursue careers other than homemaking. Functionally, then, the males between the ages of 20-64 (incl.) make up the potential labour force. In the Calling Lake area, 85 men or 22.4% of the total population must support the remainder who can be considered dependent. If the labour force-to-population ratio remains constant, the area's economy will have to make available some 160 jobs by 1981. If the age groups 5 through 19 are considered as the school-attending portion of the population, then 34.3% of Calling Lake's residents will require educational facilities. By 1981, if the proportion remains constant, 245 individuals could theoretically require educational facilities in the area or the means to secure them elsewhere.

Table 38 POPULATION OF THE CALLING LAKE AREA BY AGE GROUPS AND SEX, 1966

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	37	19.4	42	22.3	79	20.8	11.23	10.73
5-9	26	13.6	32	17.0	58	15.3	11.66	11.33
10-14	12	6.3	20	10.6	32	8.4	10.65	10.26
15-19	23	12.0	17	9.0	40	10.6	9.24	9.12
20-24	13	6.81	8	4.3	21	5.5	7.23	7.37
25-34	28	14.7	27	14.4	55	14.5	12.43	12.39
35-44	17	8.9	18	9.6	35	9.2	12.67	12.75
45-54	15	7.9	9	4.8	24	6.3	10.36	10.41
55-64	12	6.3	9	4.8	21	5.5	7.39	7.40
65-69	4	2.1	1	0.5	5	1.3	2.54	2.78
70 & +	4	2.1	5	2.7	9	2.4	4.60	5.46
TOTALS	191	*	188		379			

* May not sum to 100% due to rounding

Physical Facilities: Northlands School Division #61 provides facilities for instruction for Grades 1 through 9. Housing for the staff of five teachers consists of three teacherages.

Limited health services are provided by one nurse in the local nursing station which serves the population of the community and the surrounding area. Seriously ill patients must be flown to larger centers such as Athabasca, Slave Lake or if specialist's care is required, to Edmonton or Calgary.

A road running directly south to Athabasca is classified as improved. Another road from the community runs to a camp-site south and east. This road is classified as unimproved. The ubiquitous bush plane is, of course, another form of transportation that may be available to residents and visitors. A 2,100' gravelled strip is located on the east side of the lake but during break-up, freeze-up, and wet weather it is unusable and float or ski-equipped aircraft must be used.

Communication is possible via a mobile unit provided by Alberta Government Telephones. In addition, a private unit is located in one of the community's three general stores. A utility company provides electricity, the lake provides the water supply. Calling Lake is well within the reception range of six radio stations but beyond the reach of telecasts.

NATURAL RESOURCES IN THE CALLING LAKE AREA

Forestry: The forest management segment of the industry offers very limited opportunity for employment. There is a forestry station at Calling Lake which is staffed by two forestry officers. - A lookout tower in the area could provide seasonal employment for one man.

Before the fires of the 1967-68 season burned over about 3/10 of the area of Management Unit L2, the annual allowable cut was estimated at 8.4 mmfbm. What remains of this management unit could yield 3-4 mmfbm annually. Calling Lake is in the center of L2. The western boundaries of the FEA include small portions of two other management units; S5 and S7. Only 2 mmfbm could be harvested from those portions of S5 and S7 which are included in the FEA. In total, L2, a management unit centered at Calling Lake, could yield 7 mmfbm annually; S5 and S7, two management units whose most easterly portions are within the boundaries of the FEA, could yield 2 mmfbm more for a total of 5-6 mmfbm. Forestry; the management activity, logging and sawing could generate some 40 seasonal jobs; 2-3 in management, 18-21 in logging and 15-19 in sawing. Forty seasonal jobs can be expressed as 16 Man Year Equivalents, however, the measure may be useful for comparison but not much more, because the small size of operations in the area are expected to persist and consequently, it may be some time before permanent work will be available in forestry.

Fishing: There are ten sizeable lakes in the FEA but only five have produced commercial quantities of fish. Fishing in the FEA has been declining generally, but the most spectacular decline has been at Calling Lake itself where the annual catch dropped from 717,032 lb. in 1963-64 to less than 5,000 lb. in 1967-68. Clearly, the infestation of whitefish

by traienophorus crassus is responsible for the decline since Calling Lake is fairly large and relatively accessible. (See Table below.)

Table 39 FISH PRODUCTION IN THE CALLING LAKE AREA BY LAKE
PRODUCING, 1963-1968 ^{1/}

Lake	Location	1963-64	1964-65	1965-66	1966-67	1967-68
Calling	72-22-W4	717,032	251,709	108,565	32,859	4,945
Fawcett	73-26-W4	101,880	35,553	36,367	27,005	39,317
Meyer	69-24-W4	-	-	300	5,300	-
Orloff	75-22-W4	14,096	5,581	1,695	20,924	1,241
Rock Island	73-23-W4	17,167	26,405	56,658	51,039	91,577
TOTALS		850,175	319,248	200,585	137,217	137,080

Table 40 FISHING QUOTAS IN THE CALLING LAKE AREA BY
SPECIES 1965 - 1969 ^{2/}

Lake	1965-1966	1966-1967	1967-1968	1968-1969
Calling	250,000(T) 50,000(W) 30,000(P _k)	Nil(S) 200,000(T) 70,000(A11)	200,000(T)	200,000(T) 70,000(A11) 7,000(W _a)
Fawcett	35,000(W & T)	35,000(W)	35,000(W,T,P)	35,000(W,W _a or T)
Meyer	10,000(P _k)	10,000(P _k)	-	-
Orloff	20,000(W or P) 10,000(W) 6,000(P)	15,000(W) 6,000(P)	15,000(W) 6,000(P)	20,000(W,T, or W _a)
Rock Island	15,000(W or P) 15,000(P) 6,000(P)	12,000(W & P)	15,000(P) 42,000(W)	-
	447,000	348,000+	313,000	325,000

* W - Whitefish, P_k - Pike, P - Pickerel, P_e - Perch, T - Tullibee,
W_a - Walleye, S - Suckers, L - Ling

^{1/} Abstracted from records of Fish and Wildlife Division of the
Department of Lands and Forests.

^{2/} Ibid.

It would appear that infestation rates are highest in Calling Lake, since, as Table 40 indicates, it is the least utilized lake in the area. Whitefish is the most desirable species: Only 20% of the fish produced were whitefish but nearly half of the money earned by all species was accumulated through sales of whitefish.

Table 41 FISH PRODUCTION BY SPECIES IN THE CALLING LAKE
AREA, 1967 - 68

Species	Production		Value to Fishermen	
	lb.	%	%	\$
Tullibee	87,672	64.0	30.8	3,769.90
Whitefish	27,873	20.3	45.7	5,602.47
Pickereel	16,618	12.1	21.6	2,642.26
Pike	3,017	2.2	1.5	171.97
Ling	1,150	.8	.4	51.75
Suckers	750	.6	.2	19.50
	137,080	*	*	12,257.85

*May not sum to 100% due to rounding

In order to calculate the employment potential of the industry, it is assumed that the average yearly quota represents the sustained annual yield. It is also assumed that prices will remain steady. Under these conditions, 365,000 lb. of fish would return \$32,000; enough to support 8 fishermen at an income level of some \$3,500 (allowing for expenses of \$500).

Oil: In order to examine the activity in the petroleum industry, an area bounded by TWP's 67-76 (incl.) and RGE's 16-25 (incl.) was delineated. (This was necessitated by the form of data that was available, i.e. by township.) Exploration activity peaked in the area in 1966 and has been gradually declining since. Two gas fields of modest proportions have been uncovered; the Calling Lake Field and the Francis Field.

Employment opportunities in the area are likely to decline with the decline in activity. Over the next ten years, some opportunities will

Table 42 DRILLING ACTIVITY IN THE CALLING LAKE
AREA, 1965 - 1968

Year	Total Drilled	Abandoned	Producing, Capped, Suspended #	%	Manpower Required*
1965	43	32	11	25.6	86
1966	66	41	25	37.9	139
1967	54	36	18	33.3	113
1968	48	37	11	22.9	101
TOTALS					
/AVE	211/53	146	65	/30.8	439/110

remain but due to the previously-discussed method of recruitment and the qualifications of the members of the local labour force, the oil industry is not likely to have a large impact on Calling Lake.

Agriculture: A number of natural and economic factors should be taken into account before agricultural development is considered in the area. Climate, soil productivity, and forest cover (e.g.) would be natural limitations. Access, alternate land use (forestry) would be examples of economic limitations. Of the 1.1 Mn acres within the FEA, 219,000 are in the 'Yellow Zone', the remainder are withdrawn from settlement. Approximately 2/5 (461,000 ac.) of the area is classified as 'doubtful arable' while the remainder is classified as 'pasture and woodland'. Moreover, a good deal of the timber has been destroyed by fire. Consequently, a good deal more information is required before even a most superficial evaluation of the agricultural potential (or lack of it) can be made.

THE UTIKUMA AREA

The population of the Utikuma Area is widely dispersed around three clusters; the Settlements of Atikameg, Big Prairie and Gift Lake. Atikameg is located on the north shore of Little Utikuma (Ūtikumasis) Lake (80-11-W5); Gift Lake lends its name to a settlement on its east shore (79-12-W5); and Big Prairie is located near the south boundary of the Gift Lake Metis Colony (78-15-W5). The colony was established when the provincial government granted the land in 1939. In addition to the colony, three Indian reserves are enclosed within the FEA boundaries (155, 155A, 155B).

The FEA is centered on the Settlements of Gift Lake and Atikameg, Big Prairie Settlement is located some 20 air miles to the southwest. The nearest population center is McLennan, 45 air miles to the southwest; the Town of Slave Lake is some 55 miles to the southeast; and the Town of Peace River is 65 miles northwest.

Population dispersal in the Utikuma Area is illustrated in the table below:

Table 43 POPULATION OF THE UTIKUMA AREA, 1961 - 1966*

TWP	RGE (W5)	Population		Change	
		1961	1966	#	%
77	12	2	0	-2	-
	13	9	8	-1	-
	14	22	42	+20	+91
	15	0	1	+1	-
	16	51	46	-5	-10
78	13	3	0	-3	-
	15	249	171	-78	-31
	16	51	11	-40	-78
79	12	262	373	+111	+42
	15	12	0	-12	-
80	11	135	144	+9	+06
TOTALS.		796	796		

*Excluding populations of Indian Reserves

Population Characteristics: Although the total population has remained unchanged during the intercensal period, many internal and external shifts have occurred. If the population had increased at an average rate for isolated communities, nearly 1,000 people would have been living in the FEA by 1966. It is likely that some 100 to 200 did move out of the area but the trend is not likely to continue.

In 1968, the population was estimated at 983; 572 Metis and the remainder, registered Indians.

Table 44 POPULATION OF THE UTIKUMA AREA BY AGE AND SEX, 1966*

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	67	24.4	57	23.6	124	24.0	11.23	10.73
5-9	45	16.4	40	16.5	85	16.4	11.66	11.33
10-14	30	10.9	25	10.3	55	10.6	10.65	10.26
15-19	27	9.8	20	8.3	47	9.1	9.24	9.12
20-24	14	5.1	27	11.2	41	7.9	7.23	7.37
25-34	31	11.3	30	12.4	61	11.8	12.43	12.39
35-44	20	7.3	12	5.0	32	6.2	12.67	12.75
45-54	13	4.7	15	6.2	28	5.4	10.36	10.41
55-64	11	4.0	7	2.9	18	3.5	7.39	7.40
65-69	7	2.5	6	2.5	13	2.5	2.54	2.78
70 & +	10	3.6	3	1.2	13	2.5	4.60	5.46
TOTALS	275	**	242		517			

* Excludes Indian Reserves

**May not sum to 100% due to rounding

The potential labour force (males aged 20-64 incl.) is made up of 17.2% of the population. At this rate, and assuming that the population estimate is correct, the economy of the area should provide work for about 170 men. Assuming that age characteristics will change to conform to the average for isolated communities, by 1981, 21.9% of the population will make up the potential labour force. At this rate, the economy will

will have to generate some 367 jobs.

Table 45 POPULATION OF UTIKUMA AREA FOR 1961, 1966, 1968
AND PROJECTIONS TO 1981

Year:	1961	1966	1968	1971	1976	1981
Population:	NA	NA	983	1,116	1,367	1,675

Physical Facilities: There are three schools in the area, one in each of the communities. The school at Atikameg had an enrollment of 104 taught by four teachers with instruction in Grades 1 through 7. The two remaining schools had seven teachers providing instruction in Grades 1 through 8 to a total enrollment of 168 pupils. In the whole area, a total of 272 students were taught by eleven teachers for a teacher to pupil ratio of 1:25. Of the total population, 27.7% were attending school. If this proportion persists to 1981, 464 students will require education facilities.

Much of the housing in the area is quite satisfactory but of the houses in one area north of Atikameg, one author has remarked that they were "...the filthiest, most unsatisfactory homes seen anywhere between Mexico and the Arctic." ^{1/}

Peace River Health Unit maintains a nursing station at Atikameg and Gift Lake. One nurse spends two days per week at each station. More sophisticated forms of medical attention are available at Slave Lake and Peace River.

There are two good all-weather roads into the area; one between Grouard and Gift Lake and one skirting the north and east shores of Utikuma Lake from Slave Lake. A fair weather road runs north toward Loon Lake. An all-weather road connects the Metis Colony (and Big Prairie Settlement) to High Prairie. All roads are expected to be

^{1/} Whitford, J.; Report R: Isolated Communities

upgraded in the area to provide improved access to petroleum and timber resources. An airstrip is located on the southwest edge of Utikuma Lake. The location is quite serviceable during the summer months but is quite inaccessible to any of the communities in winter.

Alberta Government Telephones provides mobile phone service to the communities. A utility company provides light and power. Water is taken from the lake to supply the needs of the Gift Lake Settlement and from wells for the other communities.

The area is within reception range of a number of radio stations; CHFA and CBX, Edmonton and CKYL, Peace River. Television reception is not possible in the area at present.

NATURAL RESOURCES IN THE UTIKUMA AREA

Forestry: There are at least two seasonal jobs available to local residents in the forestry-protection service in the form of lookouts at Whitefish and Salt Prairie towers.

The Utikuma FEA includes the following forest management units: much of S9 and S3, the southern portion of P3, and all of the Metis Colony (Gift Lake and Big Prairie). For the next five years, the colony will yield 8 mmfbm annually, after which time (present exploitation rates remaining constant) the forest resources will be depleted. Estimates for sustained yields from other units are as follows: S3 - 4.5 mmfbm, S9 - 6 mmfbm and P3 - 3.4 mmfbm. Actual timber production is tabulated in Table 46. Production in S9 has been insignificant for the past few years but is expected to increase considerably by the end of the year when the unit is assigned. On the other hand, S3 production should taper off to conform to the sustained yield criteria. At present, many of the residents of the Metis colony find employment in P3 and P4, in areas outside the FEA. If anything, this practice should increase as the timber stands in M3 (colony) are depleted. Considering the possibilities that some of the Utikuma labour force could be employed outside the FEA while competition from other labour pools could bring men from Slave Lake, High Prairie, Enilda, etc. into the FEA as well as the forest potential, the proposed roads, exploitation rates, estimates, et., about 15 to 20 mmfbm of lumber could be exploited by the Utikuma labour pool. Since operations in this FEA are likely to be of the whole-log variety, it is estimated that between 53-70 jobs will be available in logging on a seasonal basis. In Man Year Equivalents this could mean 21-28 jobs.

Table 46 TOTAL FOREST PRODUCTION IN THE UTIKUMA AREA
1960 - 1963 - in mmfbm

MU	'60-61	'61-62	'62-63	'63-64	'64-65	'65-66	'66-67	'67-68	MAAC*
P3	1.126	0.402	1.243	2.073	0.218	0.078	0.062	2.079	3.4
S3	3.160	3.333	4.976	3.490	6.318	4.701	7.764	8.712	4.5
S9	-	0.080	0.063	-	-	-	-	-	-
TOTAL	4.286	3.815	6.282	5.563	6.563	4.779	7.826	10.791	13.9

* Maximum Annual Allowable Cut

There are signs that poplar may become a significant raw material for the wood products industry. If poplar stands are exploited, considerable additional employment may be generated.

As previously noted, timber in M3 is not being exploited on a sustained yield basis. At the present exploitation rates of 8 mmfbm per annum, the resource will be completely depleted by 1975. From the point of view of forest management, this sort of exploitation is undesirable. The resultant change in the micro-climate will reflect in a very slow recovery of the forests and extensive reforestation will be required.

Fishing: There are five lakes in the FEA with records of commercial fish production. Details are tabulated in Table 47.

The average production of fish in the area is 611,750 lb., very near the total for the 1967-68 season. A breakdown by species of the 1967-68 season's production is shown in Table 48.

Almost all of the lakes in the FEA are considered as Class A which means that the fish produced are of a high commercial quality. Some indication of their potential production can be had from past quotas.

Table 47 FISH PRODUCTION IN THE UTIKUMA AREA
1963-69 (IN lb.)^{1/}

Lake	Location	1963-64	1964-65	1965-66	1966-67	1967-68
Gift	79-12*	-	-	-	6,289	-
Mink	82-11	-	-	-	111,900	3,100
Nipisi	78- 7	74,084	35,227	40,591	68,098	69,057
Twin	82-11	-	-	-	-	25
Utikuma	80-10	570,062	280,561	484,139	844,004	571,611
Utikumasis	80-10					
TOTALS		644,146	315,788	524,730	930,291	643,793

*All West of the 5th Meridian

Table 48 FISH PRODUCTION BY SPECIES IN THE UTIKUMA AREA, 1967-68^{2/}

Species	Total Production		Value To Fishermen	
	lb.	%	%	\$
Whitefish	229,695	35.7	68.7	46,168.70
Pike	212,461	33.0	18.0	12,110.28
Tullibee	168,040	26.1	10.7	7,225.72
Perch	23,597	3.7	2.0	1,321.43
Mixed	10,000	1.5	0.6	400.00
TOTALS	643,793			67,226.13

Considering production statistics, past quotas and the quality of fish produced, an estimated future production of 600,000 lb. of fish on a sustained yield basis would not seem overly optimistic. At the average 1967-68 prices, this amount would have a value to fishermen of

^{1/} Abstracted from records of the Division of Fish and Wildlife, Alberta Department of Lands and Forests.

^{2/} Ibid.

Table 49 FISHING QUOTAS IN THE UTIKUMA AREA BY SPECIES, 1965-69

Lake	1965-1966	1966-1967	1967-1968	1968-1969
Gift	-	10,000 P _k	-	-
Mink	-	10,000 T	10,000 P _k	10,000 (A11)
Nipisi	50,000 W	50,000 W	50,000 W	-
Twin	-	-	8,000 P _k	-
Utikuma	500,000 P _k 50,000 W 30,000(0th)	300,000 P _k 130,000 W 40,000 P _k or 5,000	300,000(A11) 50,000 W 75,000 W & T	300,000 P _k & T 225,000 W
Utikumasis	-	15,000 W	15,000 W	25,000 W & P 50,000 W
TOTALS	630,000	560,000	508,000	610,000

* W - Whitefish, P_k - Pike, P - Pickerel, P_e - Perch, T - Tullibee,
Wa - Walleye

\$89,690, an amount which could support 22 fishermen at a net annual income of \$3,500 with \$500 in expenses.

As in other isolated areas, there are too many fishermen for the resource available in the Utikuma FEA. During the 1967-68 season, the value to fishermen from the industry amounted to \$67,226.13. In the same period, 223 licenses were issued. The average return per license was \$301.46, an amount that is insufficient to cover expenses.

Oil and Gas:^{1/} There are two major oil fields in the Utikuma FEA; the Utikuma and the Nipisi which accounted for 2.15% of the Alberta crude oil production. Exploration activity peaked in 1966 and has been declining more recently but is still relatively intense.

In addition to the employment resulting from drilling activity, the petroleum industry has provided substantial employment in oil field construction, brush clearing and seismic explorations. Although the jobs were available, few of the local residents were able to take advantage

^{1/} The area under consideration is a square bounded by TWP's 75-84 and RGE's 6-15.

Table 50 DRILLING ACTIVITY IN THE UTIKUMA AREA, 1965-1968 ^{1/}

Year	Total Drilled	Producing, Capped, Suspended		Manpower Requirement
		#	%	
1965	159	56	35.2	334
1966	229	115	50.1	474
1967	117	47	40.2	246
1968	78	29	37.2	164
TOTAL/AV	583/145.8	247	142.4	1218/304.5

of the opportunities because of the combination of hiring practices, lack of job information and skills. One indication of the employment situation is the fact that annual social assistance payments averaged \$650 per family during the peak drilling period.

Future employment in the industry is difficult to predict in an area because of the mobile nature of the operations. However, development drilling is certain to occur and a gas extraction plant at the Nipisi field is expected to be operational by 1971. The plant will require six skilled men.

Agriculture: The boundaries of the FEA enclose an area of some 1.1 million acres of which 207 M are classed as potentially arable, 115M are doubtful arable and the remainder are pasture and woodland.^{2/} The soil texture is mainly clay loam of the Grey-Wooded Great Soil Group. On the average, the frost-free period is less than 60 days and 17-19 inches of precipitation (water equivalent) falls in rain and snow during the year. Climate, then, is the most important limiting factor to agricultural development; a 60-day frost-free period excludes wheat production from possible crops. Both soil and climate are suitable for production of coarse grains and forage but the economics of such production will remain in doubt until a more sophisticated examination of topography,

^{1/} Abstracted from records of the Oil and Gas Conservation Board.

^{2/} Research Council of Alberta; Preliminary Soil Survey Report 64-1, University of Alberta, Edmonton, 1963. p. 51.

clearing costs and other development expenses may be made. Ranching in the area is also a possibility for consideration but from a superficial examination, the area does not appear to have any comparative economic advantage for agriculture over any of the developed areas.

Some agricultural activity is evident on the Metis colonies but its economic impact has been negligible to date. The following table indicates the magnitude of agricultural development on the colonies.

Table 51 CROP AND LIVESTOCK INVENTORY, BIG PRAIRIE AND
GIFT LAKE COLONIES - 1967-68 ^{1/}

Colony	Acres Cropped	Crops (bu)			Livestock			
		Wheat	Oats	Barley	Horses	Cattle*	Pigs	Fowl
Big Prairie	740	1,400	7600	3,760	65	57	12	0
Gift Lake	112	0	0	0	46	55	0	0
TOTALS	852	1,400	7600	3,760	111	112	12	0

* In addition, 6 ranchers on both colonies own a total of 176 cattle; an average herd size of 29.

Farming and ranching activity on the Indian Reserve was non-existent. There were three head of cattle on the reserve and 10 acres were cultivated. Of the 11,923 acres on the reserve, 100 were in wild grass, 10,709 were wooded and the remainder were classed as "other" (mainly water and wasteland).

As far as agriculture is concerned in the Utikuma area, it is a problem between the actual and the potential. At present, there are 21 farmers on the two colonies with units averaging 68 acres each and the six ranchers have herds of 29 head each. In order to provide a net income of \$4,000 per annum, a grain-producing unit of some 800 acres is required. What can be considered as the optimum agricultural potential is presented in Table 52.

^{1/} Sauve, C. A.; "People of Indian Ancestry in C.D. 15", The B-15 Plan, Research and Planning Division, H.R.D.A., Edmonton, 1969. p.321 ff.

Table 52 AGRICULTURAL POTENTIAL OF METIS COLONIES IN THE
UTIKUMA AREA ^{1/}

Colony	Land Suitable For:		Potential Units		
	Grain	Pasture	Farm	Ranch	Total
Big Prairie	10,880	188,000	18	40	58
Gift Lake	0	207,360	0	45	45
TOTAL	10,880	395,360	18	85	103

In the summer of 1968, there were 90 family units on the two colonies. It would appear, then, that there is adequate land resource to support the area's population. However, the cost of the development of these resources cannot be calculated at present because of lack of data. In addition, most of the area is in the "Green Zone" and as such, withdrawn from settlement.

1/ Sauve, op. cit. p. 326

THE EAST PRAIRIE AREA

Location: What is defined as 'community' in this section includes the whole of the East Prairie Metis Colony #4. It is located in Townships 70, 71 and 72; Ranges 14 and 15, West of the 5th Meridian. From the northern boundary, the nearest center is the Hamlet of Enilda, 9 miles to the north. The Town of High Prairie is 12 air-miles north-northwest. From the settlement proper and using the road, High Prairie is about 25 miles away.

Population Characteristics: In 1968, the population of the East Prairie Colony was estimated at 158, almost all of them Metis. The observed, estimated and projected population is tabulated below:

Table 53 POPULATION OF EAST PRAIRIE 1961 - 1966
AND PROJECTIONS TO 1981

Year:	1961	1966	1968	1971	1976	1981
Population:	153	133	158	179	219	268

The loss of population in the inter-censal period between 1961-1966 was due entirely to out-migration. It is difficult to ascertain whether this is a definite long-term trend or (as indicated by the 1966-68 increase) an erratic fluctuation. In projecting the population to 1981, the decrease is assumed to be temporary and the population is expected to grow at the average rate of 4.5% per annum which is the average growth rate for isolated communities.

If the potential labour force is defined as those males who are aged 20-64 (incl.), East Prairie's labour force numbered 48 men or 28.4% of the total population. This value is one of the highest proportions of all the isolated communities. For projecting future potential labour force the average of 21.9% of total population is used. On this basis and assuming that the projected population values prove correct, 59 men will be in the potential labour force by 1981.

Table 54 POPULATION OF EAST PRAIRIE BY AGE GROUPS AND
SEX 1966*

Age Group	Male		Female		Total		Canada	
	#	%	#	%	#	%	M(%)	F(%)
0-4	13	12.1	16	16.8	29	14.4	11.23	10.73
5-9	16	15.0	21	22.1	37	18.3	11.66	11.33
10-14	15	14.0	11	11.6	26	12.9	10.65	10.26
15-19	6	5.6	10	10.5	16	7.9	9.24	9.12
20-24	7	6.5	4	4.2	11	5.4	7.23	7.37
25-34	13	12.1	9	9.5	22	10.9	12.43	12.39
35-44	12	11.2	7	7.4	19	9.4	12.67	12.75
45-54	6	5.6	8	8.4	14	6.9	10.36	10.41
55-64	10	9.3	3	3.2	13	6.4	7.39	7.40
65-69	3	2.8	1	1.1	4	2.0	2.54	2.78
70 & +	6	5.6	5	5.3	11	5.4	4.60	5.46
TOTALS	107	**	95		202			

* Includes some of the population in outlying areas.

**May not equal 100% due to rounding.

Physical Facilities: There are no educational facilities at East Prairie at present. Students are bussed to schools in High Prairie. In 1968, 57 students from the colony were attending educational institutions. In percentage terms, this number represents 36% of the total population and is very nearly all the people in the school-attending age groups (5-19 incl.). If this proportion of users of educational facilities holds constant to 1981, facilities will be required by some 96 students.

Medical services are available to the residents from High Prairie, 25 miles away by road. High Prairie, a town of some 2,200 (1966) has a 72-bed hospital, 5 doctors and one chiropractor.

Social assistance payments, in various forms, are a major contribution to the area's economy. There are two kinds of social assistance available to the residents of the colony: direct social welfare payments and the Metis Rehabilitation Branch's subsidies in the form of salaries

for on-colony work, medical and dental assistance, etc.. These are tabulated below:

Table 55 SOCIAL ASSISTANCE ON EAST PRAIRIE METIS
COLONY, 1964-67^{1/}

Year	Social Assistance	Wages, Grants, Etc.	Total Assistance
1964	6,677	13,413	20,090
1965	9,034	16,959	25,993
1966	10,424	20,659	31,083
1967	9,869	22,530	32,399
TOTALS	36,004	73,561	109,565

The average assistnace, from all sources for the given years was \$27,931.25 per annum for the Colony. On a per capita basis, this sum represented approximately \$180. For the Province as a whole, per capita social assistance averaged \$1.35 per annum.

The only transportation means into the area is via an all-weather road between Enilda and the East Prairie Colony. During the summer, communication is possible via a battery-powered two-way radio owned by the Department of Lands and Forests. The nearest power line is 19 miles away. Electrification of homes on the Colony is due in 1969. This project will be rather costly due to widely dispersed homes and the chaotic pattern of settlement.

^{1/} Sauve', op. cit. p. 320

NATURAL RESOURCES IN THE EAST PRAIRIE AREA

Forestry: Two seasonal jobs may be available to the local residents in the forest protection service in the form of look-outs at the Goose and House Mountain Towers. However, although these towers are within the FEA, the road that provides access to them is the one from Swan Hills.

Parts of the following management units lie within the FEA: S1, S2, S02. (S02 is in the yellow zone, open to settlement. The unit will continue to yield approximately 2 mmfbm annually until the stocks are completely depleted.) In total, the management units of the FEA will yield about 12.5 mmfbm annually for a year or two. Of the total, 6.5 mmfbm will come from the East Prairie Metis Colony. The Colony is not utilizing the sustained yield techniques. Consequently, the resource will be depleted there in about two more years. After timber resources are depleted on the Colony, the FEA should continue to yield about 6 mmfbm.

On the Colony, the loggers felled and topped the trees for \$8.50 per 1 mfbm, a rather low return when compared to the finished product. Returns from logging operations in the Colony are tabulated below:

Table 56 LUMBERING ON EAST PRAIRIE COLONY, 1966-1968 ^{1/}

Year	Production in mmfbm	Returns (\$)		
		Logging Income	Timber Dues	Total
1966-67	3.074	29,389	16,391	45,780
1967-68	2.832	24,259	15,574	39,833
TOTALS	5,906	53,648	31,965	35,613

In addition, the colony has produced some tie logs and pulpwood.

Residents in the East Prairie area have been able to secure jobs in logging in areas well outside the 30-mile radius. Lumber production, therefore, is tabulated for all of the units rather than just those portions within the FEA.

^{1/} Abstracted from records of the Metis Rehabilitation Branch, The Provincial Department of Public Welfare.

The trend would indicate a declining production, a trend that is expected to continue as the resource is depleted in S02 and the Colony and as production in the remainder of the area is brought into line with sustained yield quota system.

About 1.6 mmfbm of lumber will be exploited along the Enilda-East Prairie road; additional jobs will be available in the Imperial Quotas.

Table 57 LUMBER PRODUCTION IN AREAS SURROUNDING METIS
COLONY #4, 1961-1967 (mmfbm)

Management Unit	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67
S 1	25.282	27.323	29.472	31.486	21.880	17.443
S 2	6,382	4.211	11.553	8.773	6.957	7.754
S02	5.846	8.256	10-256	2.104	4.206	4.544
TOTALS	37.510	39.760	51.281	42.363	33.043	29.741

in S1, but S2 will provide very little in employment opportunities for residents of the East Prairie area. A trend to harvesting and processing deciduous species (6 mmfbm of poplar in S2 and 22.9 mmfbm in S1) and the quality and quantity of all lumber in the area will have tendency to brighten the employment picture for East Prairie. On the other hand, competition from labour pools at Swan Hills and along the south shore of Lesser Slave Lake and west of the Lake as well as the fact that operations will tend to be of the whole-log variety, will tend to limit opportunities. Considering the known factors, a total of 30 mmfbm (all species) of lumber will be available for exploitation by the East Prairie labour pool. In terms of jobs, this amount will provide work for 110 men seasonally related industries and some work in the MacMillian-Bloedel Pulp Reserve area can be expected by 1981. If access to these jobs is improved by 1981, 115-130 seasonal jobs or 45-50 full time jobs will be available to East Prairie residents in forestry.

Fishing: For the East Prairie residents, opportunities for commercial fishing are non-existent. There are two lakes with commercial

potential, Snipe (79-19-W5) and Lesser Slave Lake (74-11-W5) but both are inaccessible. There is no convenient road access to Snipe Lake from East Prairie and Lesser Slave Lake will continue to be fished by the labour pools on its shores.

Oil and Gas: In this section, the area under consideration shall be bounded by TWP's 67-75 and RGE's 10-19.

There are four sizeable oil fields in the East Prairie area, Snipe Lake, Sunset, Goose River and Swan Hills (North). Jointly, these fields accounted for 11.4% of the total Provincial crude oil production.

Drilling activity in the area is outline below:

Table 58 DRILLING ACTIVITY IN THE EAST PRAIRIE
Area, 1965 - 1968

Year	Total Drilled	Abandoned	Producing, Capped, Suspended #	%	Manpower Required
1965	230	83	147	63.9	483
1966	146	62	84	57.5	306
1967	57	38	19	33.3	120
1968	36	21	15	41.6	76
TOTAL/Ave.	469/172.5	204	265	156.5	985/246

There has been a sharp decline from the intense activity of 1965 and the decline is expected to continue. However, some development drilling is expected to continue in order that the rate of production in the area is maintained. It is difficult to project employment in this industry but development drilling should create 25-75 MYE's per annum for the next 5-10 years. An additional 4-8 men would be required to maintain and service the existing fields. Whatever unpredictable turn the petroleum industry takes, it is certain that competition for jobs will be brisk among the labour pools in the Swan Hills and Lesser Slave Lake areas.

Agriculture: Nearly a third (322,000 acres) of the 1.1 million acres in the FEA are in the yellow zone, ie. open to settlement. Much

of the yellow zone of the FEA, however, is already utilized for agriculture and as such can offer little employment potential. According to preliminary soil surveys, between 275,000 and 325,000 acres of the green zone are within the FEA boundaries. The soil is sandy loam of the Grey Wooded Soil Group. Wheat production in the area should not be encouraged because of the frequency of damaging early frosts but coarse grains and forage should do well. The climate is classified as 3H, indicating a rainfall of 17-19" and 60+ frost free days.

On the Metis Colony itself, there are a total of 80,640 acres, of which 30,400 are potentially arable and the remainder are potential pasture. ^{1/} The following calculations of the number of potential agricultural units are based on the assumptions that \$4,000 is the minimum net return to the operator; that the average return to labour and management of \$7.04 ^{2/} per acre in the Peace Area will also apply here; and that the return per animal unit will be \$25.37 ^{3/}, the 1966 and 11 ranch units can be established on the Metis Colony.

It would be an understatement to say that Agriculture on the East Prairie Metis Colony is practiced on a very small scale.

Table 59 AGRICULTURAL RESOURCES ON EAST PRAIRIE METIS
COLONY #4 (Nov. 30, 1968)

Developed Land (ac.)	792
Cropped - 1968 (ac.)	459
Broken - 1968 (ac.)	21
Grazing & Fallow (ac.)	213
Livestock	
Cattle	54 (2 Government)
Horses	51
Pigs	27
Fowl	59
Feed - Grain & Tame Hay (T)	185 + straw and Native Pasture

In 1968, the total income from agriculture was \$5,100. In the

^{1/} Sauve', op. cit. p. 326

^{2/} Bauer, L.; 1966 Alberta Farm Business Report, Farm Management Br. Economic Division, Alberta Department of Agriculture, Edmonton 1966, p. 49.

^{3/} Hackett, B. A.; 1966 Alberta Cow-Calf Enterprise Analysis, Farm Management Br., Economics Division, Alberta Department of Agriculture, Edmonton, 1966, p. 36.

same year, there were 26 families on the Colony. With 62 potential units, it would appear that everyone on the colony could find employment in agriculture, or at least, there is much space for agricultural expansion.

This concludes the section of the report that attempts to enumerate physical resources in isolated communities in Study Area 1. The following section consists of general observations, conclusions, and recommendations.

CONCLUSIONS AND RECOMMENDATIONS

The Peerless Lake Area: The Peerless Lake Area is richly endowed with natural resources and as such, should be a centre of substantial growth for the next 5-10 years. If anything near the full resource potential of the area is recognized, an estimated 150-200 man year equivalents (MYE's) of basic non-agricultural employment will be available. Local non-basic and service industries could provide another 75-100 MYE's of employment at a conservative estimate.

In 1966, there were 33 men in the potential labour force. By 1981, at an average growth rate, there will be an estimated 68 men in the potential labour force. If other predictions hold true, a job surplus of 155-230 jobs in basic and non-basic employment would exist at that time.

Forestry will provide the majority of jobs. Exploitation of the timber potential would require 188 men on a seasonal basis engaged in logging and sawing. Considerable additional employment could be generated by centralizing the sawing, planing and drying operations in this community. A feasibility study to determine the economics of such a centralization is recommended.

Commercial fishing enterprises could provide employment for 10 men at a net annual income of \$4,500. Interesting and hitherto unexpected opportunities may exist fish farming, tourism and expansions (mostly intensive) in the fur trapping industry.

The petroleum industry should provide another 75-125 MYE's of employment. A possibility that Peerless Lake may become a secondary supply depot for the oil industry, by virtue of its central location, cannot be discounted.

Because of the resources, the location and trends in resource exploitation, prospects for growth at Peerless Lake appear good. It is therefore, recommended that additional services be provided for residents in the area; services that will, hopefully, attract residents of less viable areas such as Little Buffalo Lake and the Wabasca-Desmarais area. Perhaps the most important action would be an expansion of educational facilities. The school should be expanded in capacity and vocational training should be offered so that residents may qualify for additional

jobs as these are created. Electrical power, telephones, water and sewage disposal, and a hospital or health care center should be provided. These services would attract additional residents and serve a larger area since Peerless Lake is more or less centrally located among communities north of Lesser Slave Lake. The road system must be expanded and/or improved in order that links between resources and markets may be established and as a stimulus to labour mobility. An outline for the suggested road system is illustrated on the following page.

The Little Buffalo Lake Area: The Little Buffalo Lake settlement is poorly located in terms of its proximity to natural resources. An estimated resource base will be capable of providing 15-20 MYE's of employment. Much of this employment will be in forestry and competition will be intense as loggers from Big Prairie and Gift Lake expand their operations outward, a result of depletion of timber resources on the Metis colonies. In 1966, there were 47 men in the potential labour force, a number that will increase to 104 by 1981 if the population increases at the average rate of 4.5% per annum. Unless a rapid rate of agricultural development is realized or there is a rapid rate of out-migration, an employment deficit of 85-90 jobs can be foreseen.

Fishing enterprises appear to have little chance of success in the Little Buffalo FEA. The whole area is capable of supporting one fisherman. The petroleum industry apparently did not consider this a prime exploration area and the level of activity which was low to begin with has diminished over time.

Some of the residents may attempt to develop agricultural units in the area in order to gain employment and it is possible that some few, agricultural units, especially ranches may prosper. However, in view of the generally depressed markets for agricultural products and the high capital requirements, the development of agricultural units would not appear to be wise at this time. Furthermore, the creation of 85-90 agricultural units would be costly indeed. An agricultural expert should study the feasibility of developing ranches in the area before any firm recommendations can be made.

In view of the above problems, it is strongly recommended that all possible efforts be made to encourage residents of the Little Buffalo

SUGGESTED ROAD SYSTEM FOR THE PEERLESS LAKE AREA



Table 60 COSTS FOR PROVIDING SERVICES
FOR THE LITTLE BUFFALO AREA

	Costs at Peerless Lake With Relocation	Costs at Little Buffalo With no Relocation
1. Roads (Loon Lake to Little Buffalo - 27 mi.)	\$340,000	\$50,000
2. Schools	\$60,000	1 classroom \$12,500
3. Health Service	required	required
4. Welfare Costs	Same per capita	Same per capita
5. Electricity	Power would be provided by Utility Co.	Power company will provide a power plant if residents assume distribution costs
6. Telephone	required	required
7. Housing	42 households re- located @ 8,000 per household \$336,000	(25 @ \$18,000 14 @ \$ 3,000 =) \$242,000
8. Moving Costs	42 households @ \$300 - \$12,600	None
9. Recreation & Community Facilities	required	required
10. Water & Sewer Systems	\$34,000	\$34,000
11. Employment	no cost	30 farm-ranch units ^{1/} @ \$50,000 per unit = \$1,500,000
	\$782,600	\$1,838,500

^{1/} Approximately 30 additional jobs would be required in the area
at present.

Lake area to move to more viable communities such as Peerless Lake. The present level of services should be maintained. Any expansion in services (education, roads, etc.) should be made with an increase in mobility in mind. A table that follows outlines the cost of services under the two alternatives: 1) developing the community in its present location, or; 2) relocating the residents in a more viable area.

The Loon Lake Area: A full utilization of resources at Loon Lake could result in 60-75 MYE's of employment; an employment rate that could provide a livelihood for a total population of 400-500 people. An additional 15-30 MYE of non-basic and service industries employment could be generated in the area as a result of a natural resource exploitation. In 1966, there were a total of 37 men in the potential labour force. If the present rate of population growth is maintained, an estimated 60 men in the area will be in need of employment by 1981. It would appear, then, that a small employment surplus might exist in the area for the next 10 years or so; a surplus in the magnitude of 15-55 jobs.

About half of the available employment is expected to be in the forestry industry. It is unlikely that lumber operations will be centered in the area, consequently, the jobs will be of the sawing and logging variety.

The oil industry may provide an additional 25-75 MYE's of employment but the highly mobile nature of drilling operations make employment predictions for the petroleum industry hazardous, at best. Commercial fishing is not expected to provide employment for the local residents. The nearest producing lake is Peerless Lake. Residents of Peerless Lake Settlement are expected to exploit this resource. Some employment could be generated by developing agricultural units but hazards of these developments have already been pointed out in previous sections.

It is recommended, in view of the modest growth that is expected in the community, that all necessary services be provided for the people at Loon Lake. Academic education facilities could be expanded and made permanent. Health services and vocational training facilities are best centralized at Peerless Lake. These would serve Loon Lake and many other isolated communities and the service could be of a substantially higher quality if they are centralized. Improved access

to facilities at Peerless Lake could be achieved by improving the road between the two communities. Finally, it is recommended that the residents of Loon Lake be granted some form of permanent land tenure.

The Chipewyan Lakes Area: If a full development of natural resources is realized at Chip Lakes, a total of 11-31 MYE's of basic non-agricultural employment could be created. In 1966, there were 12 in the potential labour force, a number that is expected to rise to 56 by 1981. The inevitable employment deficit would be in the magnitude of 24-45 jobs. Consequently, the residents of Chip Lakes should be encouraged to relocate to Peerless Lake or some other community with a growth potential.

Most of the 11-31 jobs foreseen for the future may not materialize for some time because access must be improved before the exploitation can begin and many operators may well be reluctant to develop the sparse stands until all of the areas with more potential are developed. Employment potential in the oil industry is expected to be negligible because preliminary explorations had disappointing results. Commercial fishing potential in the area appears to be negligible.

In view of the dearth of resources that could provide a livelihood for the local residents, it is recommended that all efforts be made to encourage migration. Improved roads, and expanded education, including junior high school grades may be considered but these should be aimed at increasing mobility. Even if ranch units were developed, employment deficit could not be balanced. Nevertheless, some form of at least temporary land tenure should be awarded to the residents.

The Wabasca-Desmarais Area: If natural resources were exploited to the maximum possible, 140-170 MYE's of basic non-agricultural employment would result. Another 70-85 MYE's of employment may be available in the service industries for a total employment of 210-250 MYE's. In 1968, there were 440 men in the potential labour force, a number that may increase to 870 by 1981 at the present rate of population growth. A severe employment deficit which already exists will be aggregated so that by 1981, 620-660 men in the area may seek employment that simply does not exist. It is doubtful that a large number of people such as this could be absorbed by an area such as Peerless Lake. Consequently, the residents should be encouraged to migrate to industrial centers or

one or more labour intensive industries, must settle in the area. With regard to the latter, it is recommended that a feasibility study be undertaken to determine if labour-intensive industries such as furniture manufacturers or pre-fabricated housing manufacturers eg. could profitably locate at Wabasca-Desmarais.

Educational services should be expanded, especially in the area of vocational training and adult education. Facilities for educational purposes should be mobile or temporary as they are intended to encourage mobility. In the long run, vocational training can be provided more economically at Slave Lake.

It is further recommended that existing services be improved. Health services could be improved in the community and an improved road to Slave Lake would improve access to medical facilities there. Improvement to the 56-mile road would cost an estimated \$350,000. Finally, the residents should be granted tenure to the land they occupy.

The Calling Lake Area: A full utilization of resources at Calling Lake could provide between 75-125 MYE's of basic non-agricultural employment. Excellent prospects exist in service industries especially that segment which is directed at recreation and tourism. In total, 110-185 MYE's of basic and non-basic employment is possible. In 1966, there were 85 men in the potential labour force at Calling Lake, a number which is expected to increase to 157 by 1981. If these predictions prove correct, an employment deficit of 60 jobs or a surplus of 25 is possible.

A very small amount of employment is expected to be generated by the forestry industry (16 MYE's). The major portion of employment is expected to be generated by the petroleum industry. At best, this form of employment is unpredictable. Commercial fishing could provide some employment and there is a possibility for developing some agricultural units.

Calling Lake, in spite of the unpredictability of the petroleum industry and the tourist industry, appears to have some opportunity of becoming a viable community. It is, therefore, recommended that high school facilities be planned for the area. (At present, Grades 1-9 are available.) Vocational training and adult education should also be considered. These could be located at Athabasca, about 35 miles south, where they could serve a larger population. A fairly extensive road

improvement and construction programme is proposed to improve access to Orloff (Island) Lake (75-22-W4) and Rock Island Lake (73-23-W4) where commercial and sport fishing potential appears to be excellent. Improved telephone communications would be desirable.

The Utikuma Area: If resources were exploited to the fullest, approximately 120-200 MYE's of basic, non-agricultural work could be available in the area. A potential of 100 economically viable agricultural units, could make even more work available for the residents but capital requirements for this type of development are large and markets for farm products are depressed at present. Non-basic and service employment is not expected to be substantial because of the proximity of large supply centers such as High Prairie or Slave Lake. In all, basic and non-basic employment can be expected to rise to 150-250 MYE's.

In 1968, there were an estimated 89 men in the potential labour force, a numerical value that is expected to rise to 367 by 1981. It would appear, then, that an employment deficit of the magnitude of 120-220 MYE's is possible. Some consideration to agricultural development may be given in order to correct this situation.

Forestry will provide about half of the employment and the oil industry will provide the remainder. Since a substantial amount of employment is expected to be generated in the area but not a sufficient amount to avoid the anticipated labour surplus, employment-creating possibilities such as fish farming, fur farming and increased efficiency in the fur trapping industries should be given a thorough examination. Feasibility studies for agricultural development could be carried out in addition to some examination of the possibility of attracting a labour intensive industry.

In view of the above discussion, it is recommended that the high school facilities be planned in the Utikuma Area. At present, Grades 1 through 8 are offered. Vocational training facilities can best be provided at their present location at Grouard, some 25 miles south of Atikameg. Some 20 miles of road northeast of Atikameg should be upgraded in order to improve access to jobs in an area north and east of Utikuma Lake. Cost of the road improvement is expected to be in the magnitude of \$125,000. The remainder of the road system appears to be ade-

quate, at least for the present. Hospital and medical facilities are easily accessible via the existing roads. However, health facilities should be expanded, possibly to include a resident doctor. Telephone communications should be provided.

It is possible that the East Prairie Area will have a slight employment surplus. The area is readily accessible to Utikuma Area residents. As jobs become available in nearby areas, local residents should be kept informed of the employment opportunities.

The East Prairie Area: An estimated 70-125 MYE's of employment should be available to local residents if all resources were developed to their fullest potential. About half of the employment would be in forestry and the remainder in the petroleum industry. Land resources could support a total of 62 farm-ranch units. There will be a few opportunities for employment in non-basic and service industries due to the proximity of larger centers such as High Prairie.

In 1966, there were 48 men in the labour force, a number that is expected to increase to 60 by 1981. An employment surplus of some 10-65 jobs is projected to 1981. Agricultural development, if it took place, would raise the employment surplus even more. In any event, the area would seem to be the logical one to absorb some of the labour surplus from the Utikuma Area.

Although East Prairie appears to have an excellent opportunity of becoming a viable community, there are few recommendations that can be made for additional services. At the present time, educational facilities for the residents are provided at High Prairie. These are of a high quality and if they were to be provided locally, the diseconomies of scale would likely necessitate a facility of lesser quality. The case with medical facilities is quite similar; they are of excellent quality at High Prairie and access to them via the existing road is quite satisfactory. Electrical power is going to be provided shortly. Telephone communications should be improved.

SOME GENERAL OBSERVATIONS; TRAPPING
AND RECREATION AND TOURISM IN ISOLATED COMMUNITIES

Indications are that a sizeable disparity exists between potential and actual yields of wild furs over most of Northern Alberta. Due to the dearth of data, the following should not be taken as anything more than an indication of the situation.

All of the isolated communities studied were in Alberta's Census Division 15 and in all communities, the majority of the populations are of native descent. (The relevance of these facts will be illustrated shortly.) During the 1966-67 season, trappers in C.D. 15 earned an average of \$620.^{1/} Treaty Indian trappers in the census division earned an average of \$400 or \$220, less than the average. Of the \$1,030 licenses sold in the area, roughly 8% were not used at all; many more sold only a small number of pelts. For native trappers, income from trapping ranged from \$160-500. It was also noted that the number of pelts taken decreased with the introduction of welfare assistance.

There appears to be a general decline in the number of trappers in the Province. (From 2,813 in 1949 to 2,500 in 1967. In view of the fact that provincial population increased by about 1/3 during the same period, the decrease is quite significant.) The decline may well be a desirable thing, if the abandoned areas are consolidated to form larger and more viable areas for the remaining trappers. However, according to wildlife biologists, this is not the trend. It is estimated that trappers harvest 50% or less of the potential pelts.

A study of Peerless Lake included a section on fur harvesting. The trapping areas in the Peerless-Trout Lake regions could each return \$3,000 in raw furs. With \$1,000 set aside annually for equipment,

^{1/} Per active license, which is the same as per 'trapper' or per 'trapping area licensed' for white trappers. In case of native people, more than one person may be licensed to trap the same areas. For a more detailed discussion of trapping in C.D. 15, see Bigam, J. F.; Industry and Resources in Alberta's C.D. 15, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, Edmonton, 1968.

amortization, operating expenses, etc. the net income from this source could be \$2000 per trapping area, which would be an excellent supplement to the income of fishermen.^{1/} One cannot overstate the fact that the above figures are indicators only; an extensive biological survey, a market study and perhaps, some products research would be required before a satisfactory analysis of the wild fur industry would be possible.^{2/}

Recreation and Tourism in Isolated Areas: The area under study offers a wealth of activities for the tourist, of which fishing is probably most important. Perhaps the area with the greatest potential for attracting tourist and recreation seekers is the Peerless Lake Area. It abounds with excellent beaches, clean water, well-drained back shores, and well-treed backgrounds. Lakes are well-populated by whitefish, pike, pickerel and most important of all, lake trout. Calling Lake is another area with an excellent fishing potential. An average resident angler spends about \$125 per year. A non-resident would spend much more. The area could support as many as 2,000 non-resident anglers. Discounting half of what these would spend, the half that would be used for transportation and including only half that would be spent on food and accommodations, the non-resident fishermen would leave behind at least \$125,000. The two factors that seem to contribute most to the under utilization of resources are access and lack of awareness on the part of potential users.

For all practical purposes, moose are the only big game animal in the area. An 850 square mile area around Peerless Lake could support two animals per square mile for a total of 1,700 animals. If these were harvested at a rate of 25-30%, 400 animals could be taken per year. Leaving half of this amount for local residents, at least 100 hunters could be attracted to the area to harvest the remainder. In addition to the

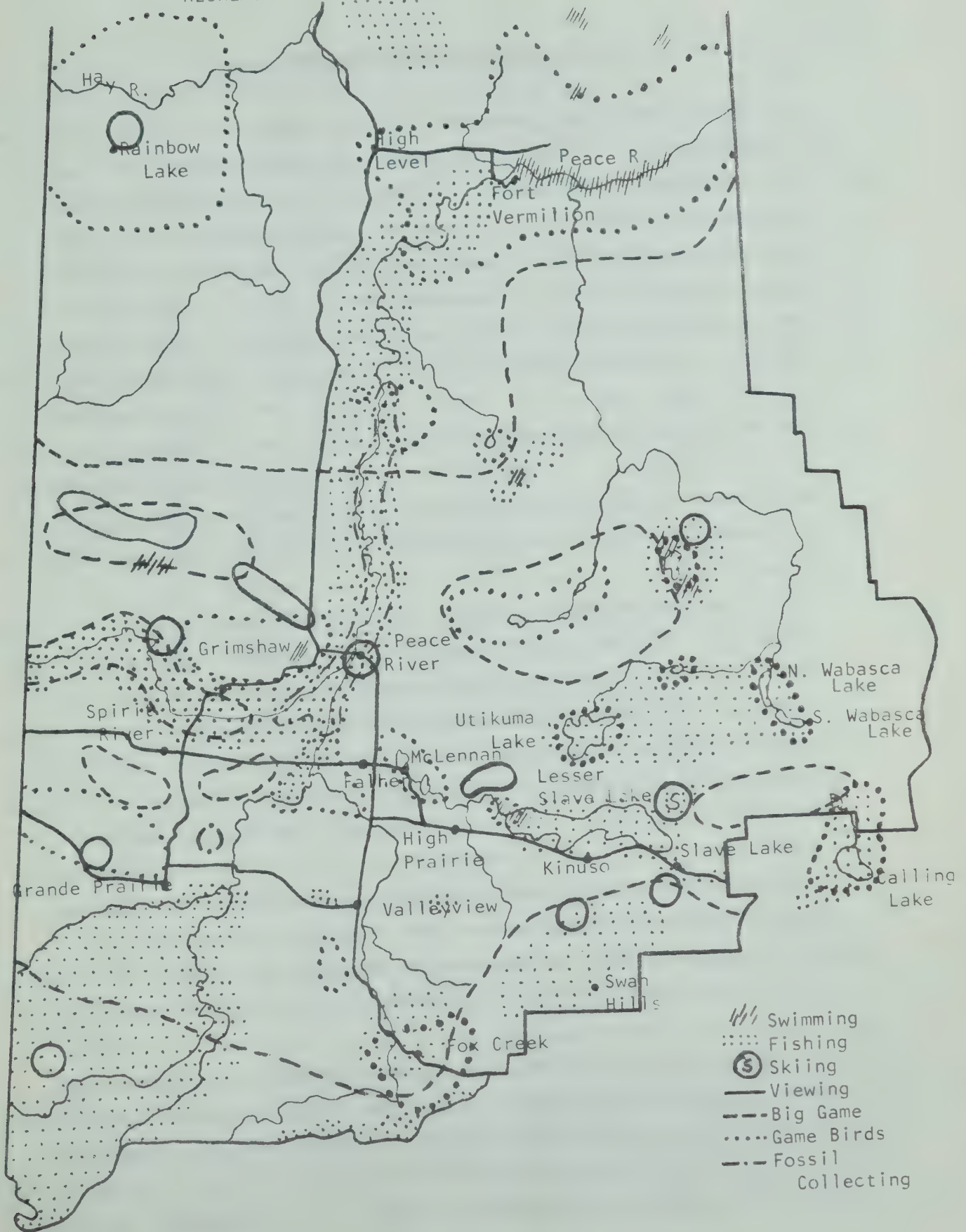
1/ Other major occupation groups - oil field workers, loggers, e.g. - would have their busy season coincide with the trapping season. Fishermen could most easily combine the two occupations.

2/ Much of the above information was supplied from the publication of Smith, S.B.; Integrated Resource Use at Peerless Lake, Alberta Department of Lands & Forests, Edmonton, 1968.

money spent for food and accommodation, local residents could offer their services as guides for perhaps \$100 per hunter and \$10,000 could flow into the local economy.

Other recreational attractions are outlined on the following map. Upland game hunting is rated as "good" to "excellent" at Loon Lake, Little Buffalo Lake, in the Utikuma and the Wabasca-Desmārais areas. Some very visible recreational dollars have already made themselves manifest in the study region in the form of 150 lake shore lots that were sold at Calling Lake.

RECREATION POTENTIAL IN C.D. 15



GENERAL RECOMMENDATIONS FOR DEVELOPMENT

If any development programme hopes to succeed, it is essential that it be undertaken only after the people affected have been consulted. The programme can succeed only if there is a substantial involvement of the people concerned. It is therefore recommended that this report be returned to the isolated communities so that its findings may be discussed by the residents. Because the majority of the residents are of native ancestry, it is further recommended that the Indian Association of Alberta, the Metis Association of Alberta and the Native Communications Society become involved in these discussions and that the organizations and the residents call upon what resource personnel they deem appropriate for assistance. To facilitate a continuous exchange of information between the residents, the native organizations and government, it is recommended that a liaison team, composed of residents of the communities, be appointed.

It has been assumed, throughout this study, that residents of isolated communities would develop the necessary skills to fill the jobs as they become available. This may or may not be the case in the long run, however, all efforts should be made to offer the education and vocational training necessary and the efforts at retraining should be co-ordinated with physical developments. Education should be an integral part of any development programme. And, education should be taken to mean the learning and perfection of the necessary skills to cope with and thrive in the physical and human environment which continuously changes and evolves. Given only the present level of resource development, it is quite clear that local residents could benefit from training in forestry, agriculture, commercial fishing, guiding, and in the petroleum industry.

In the time that it has taken to compile this study, it has been noted that qualified residents of isolated communities have remained unemployed, while the jobs to which they could have had easy access were filled by workers who were recruited from distant points. Job advertising and hiring techniques put local residents at a disadvantage. Work is

advertised and recruiting is conducted in large centers such as Calgary or Edmonton so that in many cases, local residents are not aware of work opportunities until the crews move into the particular isolated area. It is recommended that potential employers be made aware of the existence of labour pools in the areas where their activities are taking place. If need be, legislation should be enacted requiring employers to advertise work opportunities and to recruit in the areas where the activity will be carried on. The above advertising and recruiting practices are especially prevalent in the petroleum industry but to a lesser extent they appear to be common to almost all the industries that are active in isolated areas.

More specifically, with regard to commercial fishing, the following observations were made:

1. A great number of licenses were issued, many of which were unused and many more fishermen caught very few fish.
2. Some residents are casual fishermen of necessity - they do not have the financial resources to fish on a large scale nor the know-how for disposing of the catch.
3. A number of highly mobile, well-equipped fishermen are responsible for a large proportion of the catch so that the per-license averages in the body of the report should be revised downward to get the true picture of earnings by residential fishermen.

Finally,

4. Many of the lakes could produce on a continuous basis, far more fish than they have, especially the coarse species.

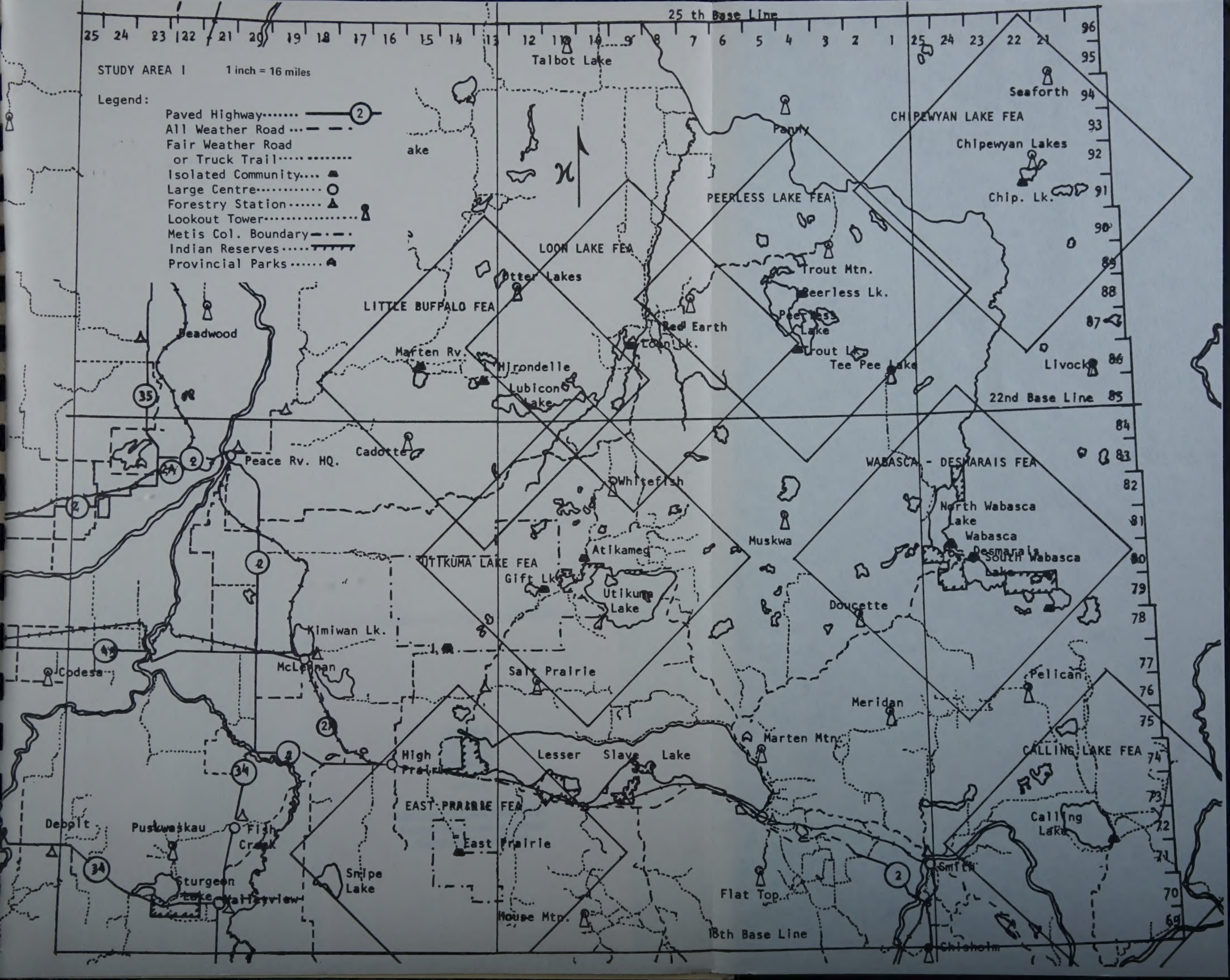
In view of the above, it is recommended that the number of licenses issued be restricted on the basis of the following criteria: 1) the number of viable units the resources can support and 2) applicants with best access to the lake should be considered first. A fish processing plant, perhaps the one at Slave Lake, should provide a fish pick-up service much like a bulk tank milk truck in order to reduce transportation costs. A lake's recreational and commercial fishing potential should be one of the considerations in new road construction. And finally, if the chain

of failures of enterprises resulting from inadequate capitalization and inexperienced, uninformed management is to be broken, consideration should be given to new ways of financing enterprises, providing management training, and improving communication and information dissemination in the area. This last point is no less true for the commercial fishing enterprises than it is for fur trapping, fur farming, farming and ranching, operation of recreational facilities, etc..

There are two enterprises which may well have exciting future prospects. They are trout farming and peat moss mining. It is recommended that both of these possibilities be further researched in order to determine the economic feasibility and the best locations for both undertakings. A good deal of research work has gone into delineating peat bogs and biological surveys of lakes (possibly suitable for fish farming) have been conducted. It is recommended that actual trials for fish farming be conducted and that further research into marketing of both products be undertaken.

Where new physical resource development programmes are undertaken, the structures for their development should take into account the particular ethnocentric characteristics of the native people. If possible, a co-operative structure for development should be contemplated. Past studies and experience indicate that native people fare better in a co-operative rather than a competitive work situations.¹

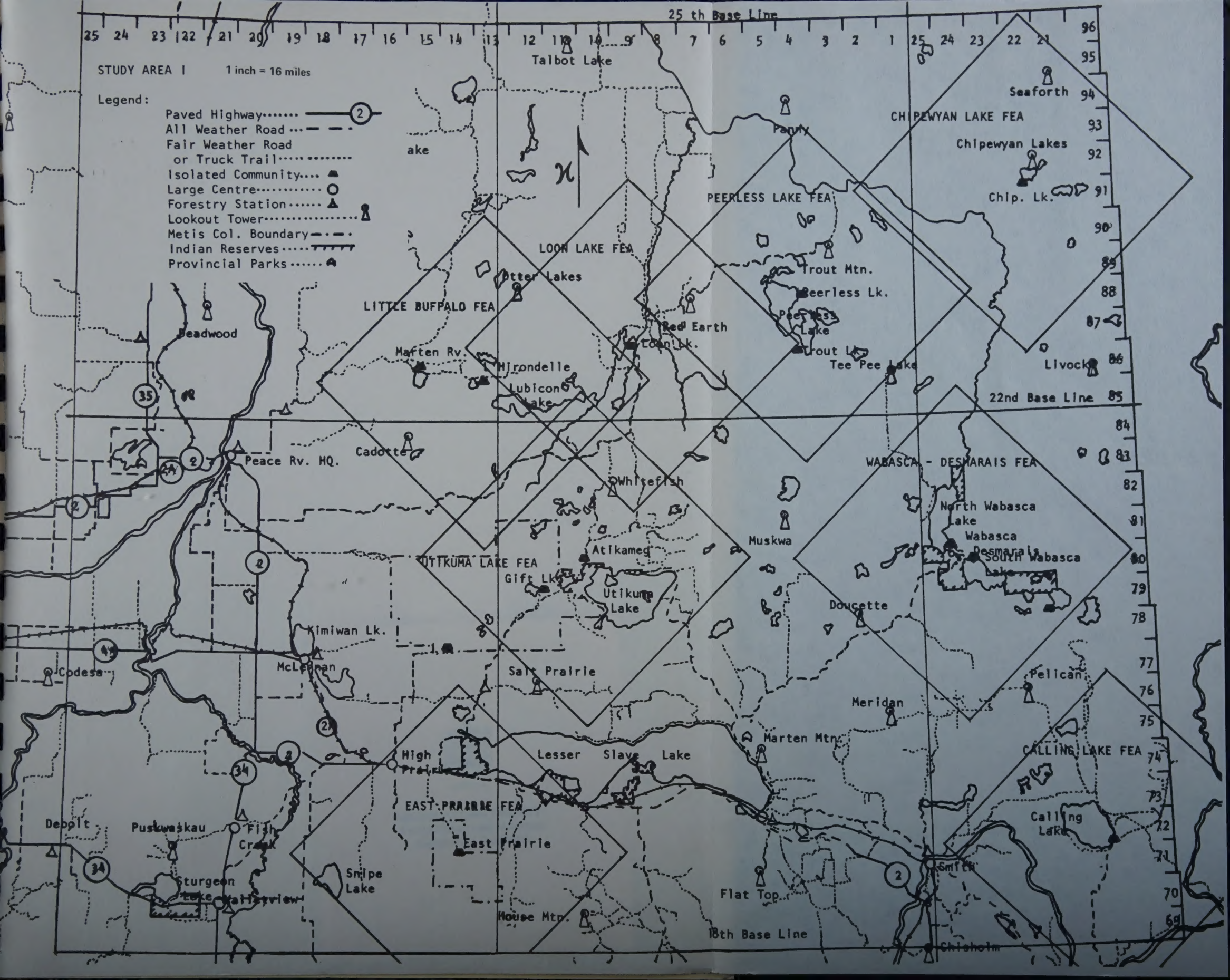
^{1/} For a more thorough discussion of native characteristics as they pertain to development programmes, see Sauve, C.A.; Theoretical Considerations For Socio-Economic Development Among Native People, Research and Planning Division, Human Resources Development Authority, Edmonton, 1969.

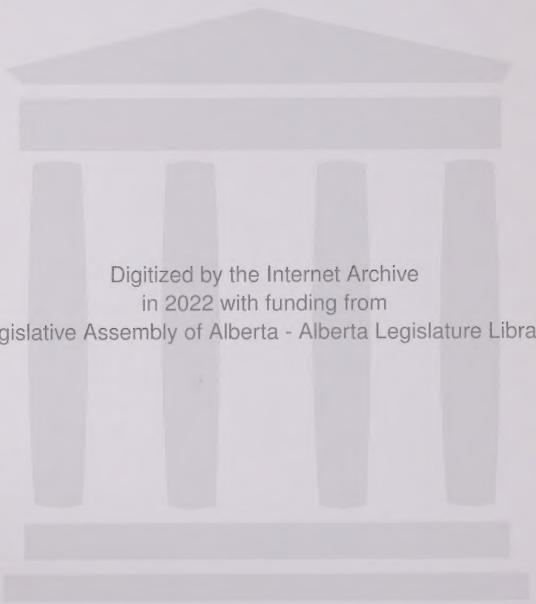


STUDY AREA 1 1 inch = 16 miles

Legend:

- Paved Highway..... 2
- All Weather Road.....
- Fair Weather Road or Truck Trail.....
- Isolated Community.....
- Large Centre.....
- Forestry Station.....
- Lookout Tower.....
- Metis Col. Boundary.....
- Indian Reserves.....
- Provincial Parks.....





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